



ENVIRONMENTAL ASSESSMENT BOARD

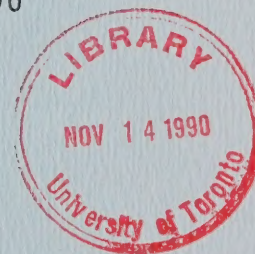
VOLUME: 253

DATE: Wednesday, October 31, 1990

BEFORE:

A. KOVEN Chairman

E. MARTEL Member



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ENVIRONMENTAL ASSESSMENT BOARD

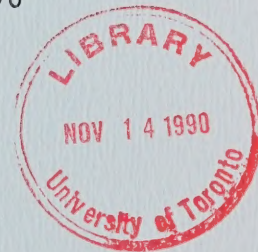
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the offices of the Ontario
Highway Transport Board, Britannica Building,
151 Bloor Street West, 10th Floor, Toronto,
Ontario, on Wednesday, October 31st, 1990,
commencing at 9:00 a.m.

VOLUME 253

BEFORE:

MRS. ANNE KOVEN
MR. ELIE MARTEL

Chairman
Member

A P P E A R A N C E S

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MR. B. CAMPBELL)	
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MR. R. COSMAN)	ASSOCIATION and ONTARIO
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	LABOUR



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I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>GEORGE MAREK</u> , Sworn	45499
Direct Examination by Ms. Swenarchuk	45499

I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
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1515A	Source Book No. 1 re: FFT Panel 3.	45994
1515B	Source Book No. 2 re: FFT Panel 3.	45994
1516	Six-page errata.	45995
1517	Eight-page German article entitled: Die Schutzfunktion Und Stabilitat Von Valdokosystemen, published in 1979, authored by D. Mlinsek with English abstract and summary.	45996
1518	12-page article by MNR entitled: Harvesting and Regeneration Option, 1987.	45996
1519	Curriculum vitae of George Marek.	45996
1520	Binder of slides pertaining to Mr. Marek's evidence re FFT Panel No.3.	45997
1521	Ten-page list of slides to be using during Mr. Marek's evidence, distributed October 25, 1990.	45998

1 ---Upon commencing at 9:00 a.m.

2 MADAM CHAIR: Good morning. Please be
3 seated.

4 Good morning, Mr. Marek.

5 THE WITNESS: Good morning.

6 MADAM CHAIR: Ms. Swenarchuk.

7 MS. SWENARCHUK: Good morning, Madam
8 Chair, Mr. Martel. We're ready to begin with testimony
9 on Forests for Tomorrow's witness statement No. 3.

10 I believe the first step will be to file
11 a number of exhibits. First of all, I'd ask for an
12 exhibit number for the witness statement No. 3.

13 MADAM CHAIR: That will be Exhibit 1514.

14 ---EXHIBIT NO. 1514: Witness statement No. 3 re FFT
15 Panel 3.

16 MS. SWENARCHUK: And then for each of the
17 two volumes of the source book to that witness
18 statement, 1515A and B perhaps.

19 MADAM CHAIR: One moment, Ms. Swenarchuk,
20 I just want to make sure we have -- yes. So source
21 book 1 for witness statement 3 will be Exhibit 1515A.

22 MS. SWENARCHUK: Right.

23 MADAM CHAIR: And source book No. 2 for
24 witness statement No. 3 will be 1515B.

25 MS. SWENARCHUK: Right.

1 ---EXHIBIT NO. 1515A: Source Book No. 1 re: FFT Panel
No. 3.

---EXHIBIT NO. 1515B: Source Book No. 2 re: FFT Panel
No. 3.

4 MS. SWENARCHUK: And we have as well an
5 errata sheet to distribute today with regard to the
6 witness statement. It's incorporates errata of
7 previous errata statement of August 17th, 1990 and it
8 adds to it, and it amounts largely to small changes,
9 we've been very specific about exact quotes and that
10 sort of matter, so we want to distribute that as well
11 today. And I guess this will be Exhibit 1516.

12 MADAM CHAIR: That's right. And how many
13 pages?

14 MS. SWENARCHUK: Six pages, Madam Chair.

15 MADAM CHAIR: Thank you.

16 MR. HUFF: (handed)

17 ---EXHIBIT NO. 1516: Six-page errata.

MS. SWENARCHUK: And we have as well two additional articles to be filed at this point. One is by D. Mlinsek, M-l-i-n-s-e-k, the title is German and perhaps I'll just give it to the reporter for titling and I won't embarrass us all with my German pronunciation by trying to read it out. The abstract and summary to the paper are in English.

25 MR. HUFF: (handed)

1 MADAM CHAIR: How many pages in the
2 article?

3 MS. SWENARCHUK: One second. Eight
4 pages, Madam Chair.

5 MADAM CHAIR: Eight. And what year was
6 it published?

7 MS. SWENARCHUK: 1979.

8 MADAM CHAIR: That will be Exhibit 1517.

9 ---EXHIBIT NO. 1517: Eight-page German article
10 entitled: Die Schutzfunktion Und
11 Stabilität Von Valdokosystemen,
12 published in 1979 authored by D.
Mlinsek with English abstract and
summary.

13 MS. SWENARCHUK: And one other article
14 which is a Ministry of Natural Resources publication
15 from 1987 entitled: Harvesting and Regeneration
16 Option, and it's 12 pages plus two cover pages.

17 MADAM CHAIR: That will be Exhibit 1518.

18 MR. HUFF: (handed)

19 ---EXHIBIT NO. 1518: 12-page article by MNR entitled:
20 Harvesting and Regeneration
Option, 1987.

21 MS. SWENARCHUK: Also, Madam Chair, if we
22 could provide a number for the curriculum vitae of Mr.
23 Marek which was distributed with the witness statement.
24 This would be 1519?

25 MADAM CHAIR: That's right.

1 ---EXHIBIT NO. 1519: Curriculum vitae of George Marek.

2 MS. SWENARCHUK: And for the hard copy of
3 the slides which were also previously provided.

4 MADAM CHAIR: And the hard copy of the
5 slides, will that be in the --

6 MS. SWENARCHUK: You should have a binder
7 that looks like this. (indicating)

8 MR. FREIDIN: Are those the slides,
9 Michelle, that had a covering letter of October 25th,
10 1990?

11 MS. SWENARCHUK: That's right, yes.

12 MR. FREIDIN: Right. 160 slides.

13 MS. SWENARCHUK: Numbers up to 160, some
14 in fact are not there. There's I think approximately
15 146.

16 MADAM CHAIR: Mr. Pascoe is going to get
17 that document for us and we'll give it Exhibit No.
18 1520.

19 ---EXHIBIT NO. 1520: Binder of slides pertaining to
20 Mr. Marek's evidence re FFT
Panel No.3.

21 MS. SWENARCHUK: Yes, you may find it
22 helpful as we're going through the testimony.

23 MADAM CHAIR: And please tell me again,
24 there will be 160 slides?

25 MS. SWENARCHUK: No, there is a list

1 which lists slides numbered 1 to 160, in fact there are
2 some gaps in those numbers for slides removed. If I
3 can provide you that number later, I will check that,
4 Madam Chair.

5 MADAM CHAIR: Thank you.

6 MR. FREIDIN: Perhaps we should just mark
7 the list as the exhibit and the photographs --

8 MS. SWENARCHUK: Well, I suggest the next
9 exhibit number would be for the slide list, which would
10 be 1521.

11 MADAM CHAIR: And what date is on the
12 slide list.

13 MS. SWENARCHUK: There isn't a date on it.

14 MADAM CHAIR: There isn't.

15 MS. SWENARCHUK: As Mr. Freidin says, the
16 revised slide list was distributed on October 25th.

17 MR. FREIDIN: October 25th, 1990.

18 MADAM CHAIR: All right. And how many
19 pages is that list?

20 MS. SWENARCHUK: Ten pages.

21 MADAM CHAIR: Ten pages.

22 MR. FREIDIN: That list, ten pages.

23 . ---EXHIBIT NO. 1521: Ten-page list of slides to be
24 using during Mr. Marek's
25 evidence, distributed October 25,
1990.

1 MADAM CHAIR: We're also looking for Mr.
2 Marek's CV, Ms. Swenarchuk. It's here somewhere.

3 MR. MARTEL: Is it only one page?

4 MS. SWENARCHUK: And the other side, yes.

5 MR. MARTEL: Yes.

6 MADAM CHAIR: All right, thank you.

7 MS. SWENARCHUK: I'd ask then now, Madam
8 Chair, that the witness be affirmed.

9 MADAM CHAIR: Mr. Marek?

10 MS. SWENARCHUK: Affirmed, Madam Chair.

11 MADAM CHAIR: Oh, that's right. Of
12 course, thank you for reminding me.

13 GEORGE MAREK, Affirmed

14 DIRECT EXAMINATION BY MS. SWENARCHUK:

15 Q. Now, Mr. Marek, if you try to speak
16 into the microphone while you are sitting down that may
17 help the reporter.

18 MS. SWENARCHUK: Prior to having the
19 witness' expertise established, Madam Chair, Mr.
20 Martel, it will be necessary for me to ask him to
21 expand to some extent on the CV that was filed.

22 I don't propose to review the evidence of
23 Mr. Marek's education or time in Europe, I think that
24 speaks for itself on the curriculum vitae.

25 Q. Do you have it in front of you, Mr.

1 Marek?

2 A. Yes, I have.

3 MS. SWENARCHUK: I will review with him,
4 however, his experience in Canada.

5 Q. Mr. Marek, I understand that you --
6 excuse me. There is a problem with photos; is there?

7 MADAM CHAIR: Yes. I don't think that
8 should interrupt at this point, Ms. Swenarchuk.

9 MS. SWENARCHUK: Fine.

10 Q. You were trained in forestry and
11 worked in forestry in Europe; were you not, and
12 immigrated to Canada in 1950; is that correct?

13 A. That's correct.

14 Q. And commencing in 1957 you worked
15 with the Ontario Department of Lands and Forests and
16 then for the succeeding Ministry of Natural Resources
17 and you worked for those ministries from 1957 to 1984;
18 is that correct?

19 A. That's correct.

20 Q. And the curriculum vitae indicates
21 the positions that you held; timber technician, unit
22 forester, acting timber supervisor, and then forest
23 management supervisor for the Nipigon District.

24 In that capacity, could you summarize for
25 the Board what your duties entailed as forest

1 management supervisor for the Nipigon District?

2 A. Madam Chair, Mr. Martel, during the
3 period 1973-1984 I worked for the Ontario Ministry of
4 Natural Resources in the capacity of forest management
5 supervisor in Nipigon District.

6 My responsibility was to plan and
7 implement forest management program in that district.
8 Beside that, I was member of several committees, I was
9 very active in research with the CFS, Canadian Forestry
10 in Sault Ste. Marie, I had a contact with other
11 ministry throughout Canada, and I have conducted many
12 private and personal investigations into the forest
13 lands.

14 I think that would probably quickly
15 summarize my responsibility as I perceive it.

16 Q. Now, on the second page of your
17 curriculum vitae, Mr. Marek, you have referred to some
18 of the particular areas in which you worked, and I
19 would like you to expand briefly on what has been
20 described as your pioneering work in development of
21 site preparation equipment?

22 A. Madam Chair, Mr. Martel, when -- in
23 1957 when I started with the Lands and Forests I have
24 quickly realized the lack of equipment and research,
25 lack of general knowledge about the dynamics of the

1 boreal forest. Perhaps as a forester with European
2 background where perhaps the forestry is at the
3 "highest state of understanding" due to the background
4 information, due to the experience of the forester, and
5 through the fact that Europe is practising forestry for
6 many hundreds of years, I have recognized that in order
7 to practise forestry, not only in Ontario but in Canada
8 in general, we must somehow get the basic information
9 in order to be guided by them, in order to practise
10 forestry which I think is important not only to the
11 society but also to the forest itself, forest lands;
12 therefore, I start frantically looking for information
13 I can use and I can be guided by. There were none
14 there.

15 There were some informations about
16 forestry and forest silviculture, forest dynamics from
17 the area south from here, in United States and in
18 southern Ontario, but there was practically none for
19 the species I was interested in and I was supposed to
20 manage; therefore, I started investigating on my own.

21 Madam Chair and Mr. Martel, we must not
22 forget that when I arrived in this country the forestry
23 was guided by one aspect only, that was the aspect of
24 production, exploitation; e.g., harvesting, but there
25 was very little consideration given that time to the

1 silviculture aspect, to the renewal of the forest, to
2 the knowledge of dynamic of the forest, et cetera;
3 therefore I started on it and matter one of the first
4 things which I have of course attacked was the problem
5 of - as my counsel said - is the problem of site
6 preparation.

7 Site preparation is one of the most
8 important aspects of revitalizing, rejuvenating the
9 sites after they were cut or harvested; therefore, I
10 got involved in site preparation equipment. And it was
11 difficult to explain at that time to many foresters
12 that this is necessary because, as I said, the
13 understanding of forest land renewal was so limited.

14 So site preparation consists of churning
15 up, site prepare, scarifying the land and making
16 suitable for regeneration. And when I approached that
17 time my bosses in Lands and Forests, officials, the
18 statement was: Well, that is fine, but where are you
19 going to get that equipment? And I says: Well, it has
20 to be constructed, it has to be engineered, it has to
21 be -- well, the answer usually was: There's no money
22 for it, or we cannot, it's not our business.

23 So I started on my own and my first
24 suggestion - and I have discussed this with my counsel
25 a few days ago - was that I like to see army being

1 involved in site preparation and, of course, everybody
2 laugh about it and say, why do you say army. I said:
3 No, I don't mean actually army, I mean the vehicles, I
4 mean their tanks, personnel carrier and churn up the
5 land. That was of course not accepted, also I feel
6 that perhaps it should have been done.

7 So I started that time with my own
8 approach and by securing large boulders of granite I
9 start dragging these granite boulders attached to the
10 tractors and connected by heavy cables in order to
11 achieve what I thought was absolute necessity.

12 Q. Now, Mr. Marek, I'm showing you a
13 picture from the Ministry of Natural Resources, Panel 2
14 statement of evidence at page 95. It shows a large
15 boulder and beside it a small child. Can you describe
16 to the Board what that photograph depicts?

17 A. I don't have to describe the boulder,
18 everybody see it's a big piece of granite, but that
19 little fellow who's standing beside is my son.

20 Q. And when was that photograph taken?

21 A. That was way back in sixty after --
22 well, my son was what, three years old. I think '63 or
23 '64.

24 Q. Could you indicate then other
25 innovations that you worked with in site preparation?

1 A. I suppose a second kind of step to
2 get what I wanted was work in tree planting itself.
3 Because I was planning and implementing large tree
4 planting project, several million trees, and I knew
5 very well and recognize very quickly that with the
6 staff we had that time - don't forget I started with no
7 technicians, no labour force except Indian people - and
8 I needed help, and the idea occurred to me perhaps that
9 somebody else could do the work for me or for the Lands
10 and Forests by using the contract.

11 Now, again I was very unsuccessful at the
12 beginning because immediately my bosses told me:
13 Nobody can plant trees but Lands and Forests. And of
14 course I said: Well, I doubt it, but we can train
15 people, we can educate foremans, we can educate
16 contractors. And it took me long time; matter of fact,
17 it took me audience with the Minister himself that time
18 in 1958 that eventually on an experimental base base
19 approval was given to initiate contract planting, and
20 as you know, contract planting is the answer to it now
21 and everybody is using contractors to plant trees.

22 But it was tough work, believe me or not,
23 to get approval for this kind of approach, and perhaps
24 today when I see contract planting as it is being used
25 and implemented, I'm not quite happy that I had that

1 thought in the first place, perhaps should have a
2 second thought; however, I will be dealing later on
3 with the issue itself.

4 Q. Now, Mr. Marek, over what period of
5 time were you involved in regeneration efforts
6 involving contract planting?

7 A. Well, I have been involved since
8 1958, I suppose, til I quite Ministry 1984.

9 Q. Now --

10 A. Go ahead.

11 Q. I understand that you also worked
12 using cold storage and planting stock; is that correct?

13 A. That's correct. With the number of
14 trees we planted, I had difficulty with survival at the
15 beginning due to the maintaining the efficiency and
16 health of the trees themselves. In Europe the "cold
17 storaging" is resolved by many means, but with the lack
18 of funding which we had in 50s, 60s and even later on
19 in 70s, it was difficult to duplicate the European
20 efforts and European approach to cold storaging,
21 refrigeration and so on.

22 So I had proposed that time that perhaps
23 the whole secret of maintenance, the quality of the
24 trees, was to store it in the field, never mind in the
25 nurseries; nurseries do their duties by producing trees

1 the forester like to plant, all right, or like to
2 establish, but I think it's the duty of the field man,
3 the management forester or the fellow who is in charge,
4 that he takes care of the trees in the moment the
5 nursery release the trees to him, and because that time
6 he didn't have refrigeration grants and cold storage as
7 it is right now, I established cold storage in the
8 central area of my unit and experimented with the
9 survival and well-being of these trees. It's no point
10 to plant the trees which are in poor shape.

11 So I have established live storage which
12 was actually the vertical mine shaft in Beardmore. As
13 you know, Beardmore is an area where very extensive
14 mining activity occurs, well last century I would say,
15 and this mining shaft was used by me as cold storage.
16 Of course what this kind of approach requires is a
17 steady monitoring of the trees' quality themselves and
18 it requires knowledge which I had from Europe; and that
19 knowledge was that the trees are not served very well
20 with long-term freezing; in other words, storing trees
21 in a freezer, leave it there, and then open up the
22 freezer and take it out and plant it.

23 My experience was that this kind of
24 approach may lead to very difficulties with keeping
25 freezing, constant. That means, that if you break

1 continuous freezing by raising temperature, by accident
2 or by technological problem with your freezing system,
3 that you may introduce very serious damages to the
4 trees.

5 So I have decided to break this out; in
6 other words, not to follow the total freezing for
7 months and months before I -- in spring when I go plant
8 them, that I will accommodating the storage where the
9 temperature was a little above the freezing
10 temperature; in other words, the trees were not frozen
11 constantly and I monitored the temperature slightly
12 above the freezing point.

13 But that introduced of course other
14 difficulties because by that type of temperature you
15 may introduce molding, bacteria activities, you may
16 introduce pathogens also. So what I'm saying is, that
17 the supervision must be very efficient.

18 I could do it because I was living there
19 so I took care of that. One of the problems I had also
20 was the fact that I like to plant trees year round, and
21 year round means frost free season. Of course I don't
22 plant trees in the snow when everything is frozen, but
23 I like to see in the forst free season, which is
24 usually up north between May and October, planting
25 trees, and I did it and I had planted trees throughout

1 the seasons for many, many years and with results which
2 can be seen. Plantations I have established and
3 planted are in good shape; however, later on what's
4 happened and dynamics I will be dealing with later on.

5 Q. Okay, Mr. Marek --

6 A. But this way I could have plant trees
7 from May til October with two weeks interruption in
8 August.

9 Q. I understand you have referred in
10 your CV as well to pioneering work in ecosystem studies
11 and I understand that you made early contacts with the
12 scientists from Yale University; Bormann, Likens,
13 Pierce, et al and discussed ecosystem studies with
14 them; is that correct?

15 A. That is correct. Again, there were
16 good reasons for it. I indicated already, Madam Chair,
17 that I had difficulties to get proper information,
18 proper scientific research.

19 Q. If I could just interrupt, Mr. Marek,
20 and ask when your first contacts with them occurred?

21 A. My first contact was when Bormann and
22 Likens, Pierce, White and a group of these scientists
23 here published first papers, that was around 1959.

24 These people were already working on the
25 problem of ecosystem and I got ahold of it and I made a

1 contact with them and I maintain the contact up to now.
2 And that helped me considerably to approach the
3 ecosystem with kind of holistic approach to boreal
4 forest management with their help; in other words, the
5 publication which were done, the research which were
6 done there, the seminars which we have conducted helped
7 me quite a bit to understand. I understand this, but
8 it helps to have scientific papers in the background.

9 Q. And I understand then that you also
10 have had contact over the years with such forestry
11 academics and scientists as Dr. Baskerville, Dr.
12 Weetman, Dr. Timmer and Dr. Armson; is that correct?

13 A. Yes.

14 Q. And that you have been involved in
15 studies with graduate students for those professors; is
16 that correct?

17 A. They invite me to lecture mainly on
18 black spruce. They visited me in the area where I was
19 working, watching the establishment of large area of
20 pure spruce plantation, black spruce, white spruce, and
21 I think they were very useful to me, and these kind of
22 connections which I had should be actually done by each
23 forester.

24 I think that we have progressed
25 considerably the last 10, 15 years, the transfer of

1 technology is improving; however, what kind of alarms
2 me is the direct input of scientists into the
3 management techniques and management strategy in the
4 field, they are far away from us.

5 For instance, Dr. Bormann who is a
6 personal friend of mine and all these Yale group
7 including Dr. Liken, and some of them who already
8 retired now, were extremely -- when they show me that
9 they are willing to come up here all the way to
10 Beardmore, you know, from Yale from Mass -- from the
11 eastern United States and stay with me for days
12 observing, watching, discussing the problems which I
13 had, they found it stimulating. I found it very
14 stimulating and so the benefits was mutual. And may I
15 point out that I, up til now, I keep contact with these
16 people.

17 Q. And I understand that you have also
18 lectured at Yale University, Lakehead University,
19 University of Toronto and, University of New Brunswick;
20 is that correct?

21 A. Yes, I have been invited frequently
22 to lecture students, graduate students or the
23 undergraduate students and we had many trips, done in
24 many years back to the area where I worked, because I
25 think that forestry is not forestry at all if it's done

1 in isolation, in the offices and in front of the
2 computers, I think the forestry -- forester himself
3 have to be in the field, so does the scientist.

4 Q. And I understand that graduate
5 students who worked with you included Mr. Moreau, whose
6 supervisor was Dr. Timmer, and Mr. Savinski whose
7 supervisor was Dr. Timmer, and Mr. Clemmer whose
8 supervisors were Dr. Baskerville and Dr. Weetman?

9 A. Yes. These fellows approached me,
10 Dr. Baskerville, Weetman and many others approached me
11 if they could send graduate students for post-graduate
12 studies, and that has been done and, again, it was
13 great experience for me, but may I point out that this
14 experience was not easy to gain because you have to
15 concentrate on these things; in other words, you have
16 to work night and day to get these things together,
17 it's not simple. I have been in conflict with many
18 other duties because you cannot work 24 hours a day.

19 Q. I understand that you have also over
20 the years undertaken on your own what you refer to as
21 etiological studies, that is e-t-i-o-l-o-g-i-c-a-l, and
22 could you explain the term and explain the process of
23 these studies?

24 A. The basic process is that you study
25 causes, causalistic --

1 MS. CRONK: I'm sorry, Madam Chair, we
2 can't hear at the back. If you could speak into the
3 mike. Thank you very much.

4 THE WITNESS: Oh, I'm sorry.
5 I'm talking to -- it's a causalistic approach.

6 MS. CRONK: Sorry. Madam Chair is at the
7 front of the room, I would just like to hear you, sir.
8 So if you could address the Board but speak a little
9 louder, we'll all be fine. Thank you.

10 THE WITNESS: Okay. I see.

11 MS. SWENARCHUK: I will just tell you,
12 Mr. Marek, that the same problem has occurred
13 frequently in the hearing, it's a problem with the
14 acoustics.

15 A. I'm sorry, I didn't realize it. It's
16 a causalistic approach to forestry as to other
17 endeavors in science where you study more or less
18 continuously the environment, the research area, and
19 distinguish quite frequently between the studies of --
20 the perpetual study or study in the isolation.

21 In other words, scientists study certain
22 things, and matter of fact few might say, like
23 frequently forestry scientists and the students go in
24 the field and study for two months during the nice
25 period of warm climate and conveniently prepare report.

1 Well, this is not another kind of science I'm talking
2 about, I'm talking about study, a steady, permanent
3 study of visiting the area, observing them, document
4 them as much as possible, then return again under
5 different condition year after year or time by time to
6 these areas, examine them, thus pursuing the total
7 dynamic of the system.

8 Q. And over what time period have you
9 been conducting these studies, Mr. Marek?

10 A. Well, because I was trained in Europe
11 to do this, I have started here 1957 and I still
12 continuing to do so.

13 Q. And I understand that in this process
14 you have monitored several hundred sites in the boreal
15 forest; is that correct?

16 A. That is correct. I cannot -- see,
17 one of the problem is that I cannot say it's 102 sites
18 or 152 sites, I cannot say that, but I have many, many
19 sites across the boreal forest which I am monitoring as
20 much as I can as the time allowed, and I can get to it.
21 Sometimes it takes me whole day to travel to these
22 sites because the area change so drastically that you
23 have obstacle just to get into it; you cannot fly in,
24 you cannot helicopter, so I walk, I have lots of time,
25 I walk and I get there eventually, but I'm not going

1 there, of course, every week or so. That is etiology
2 approach.

3 Q. And would it be correct to say that
4 much of this has been done at your own expense?

5 A. Forestry is vocation to me and I
6 think that I put lots of my own time and my own money
7 in order to know what I know.

8 Q. I just have one last question with
9 regard to -- question area with regard to your CV, Mr.
10 Marek, and that is, that you have indicated on it that
11 you were the Chairman for 10 years of the Joint MNR,
12 Industry and Canadian Forest Service Black Spruce
13 Working Group, and I wonder if you could explain for
14 the Board what that group was and what those studies
15 entailed?

16 A. Madam Chair, in late 60s and 70s,
17 finally the recognition was made that we needed more
18 scientific know-how about the dynamics of the boreal
19 forest, not in general, but mainly of the dynamics of
20 our most important conifer species which is black
21 spruce.

22 This recognition I think came after I
23 pushed relentlessly to establish working group which
24 will finally deal with problems I recognized for a long
25 time, and also with the problem that black spruce is a

1 most important species, you have to be tact
2 scientifically. That's all right for me to go and
3 visit these area every once in a while and tell my
4 supervisor or superior or even Deputy Minister, look,
5 we have to do something black spruce, we have to do
6 something about black spruce management.

7 Well, finally towards the end of 60s and
8 beginning of 70s the group was formed. The group was
9 not to my liking because I would love to have
10 scientists from Yale and some of these really
11 knowledgeable people get involved in that group,
12 however, compromise was made and a group was
13 established, and the group -- and Industry, MNR and the
14 CFS approved or suggested me being the Chairman. I
15 suppose they did it for one reason because they knew my
16 concern for a long time, they knew I had a certain
17 knowledge about the problem, so I was Chairman for them
18 for 10 years.

19 It was a good and bad experience.
20 Perhaps it was not set up to my liking, perhaps it was
21 not set up and the results are not what I expected but,
22 again, I must understand - and I always find excuse for
23 it - that forestry is a new endeavour, or forestry
24 science is a new endeavour in Canada and in Ontario and
25 our resources are limited, our scientific know-how is

1 limited, and access to the scientists themselves is
2 limited.

3 When we talk about ecosystem studies we
4 are talking about very complex study with very complex
5 systems which very diverse inputs required in these
6 studies; in other words, when you study the total
7 ecosystem of the forest you must include biochemists,
8 soils men, chemists, physics, all these -- foresters,
9 and that is pretty hard to come by, because you have to
10 have a group which, No. 1, know what they are after;
11 and, No. 2, they cooperate together, and perhaps that
12 will have to be recognized as yet.

13 Q. Now, with regard to the black spruce
14 working group, Mr. Marek, I understand that numerous
15 publications resulted from those studies, many of which
16 in fact are already exhibits before this Board, and for
17 the assistance of the Board and parties, Mr. Marek and
18 I reviewed the Jeglum paper which appears in Volume 2
19 of the source book to this witness statement, and the
20 bibliography literature cited at page 14 to 17 of that
21 paper.

22 Would you agree with me, Mr. Marek, with
23 the exception of the Losee, L-o-s-e-e, and Rosen and
24 Lundmark papers, the other papers cited there were
25 related to work performed by the black spruce working

1 group; is that not correct?

2 A. Yeah, that is correct.

3 MADAM CHAIR: Excuse me, Ms. Swenarchuk,
4 where are you? You're at source book 2?

5 MS. SWENARCHUK: Yes. I don't know that
6 it's necessary to turn to it, I'm just stating that for
7 the record and you may wish to refer to it later.

8 MADAM CHAIR: All right. And who was the
9 author?

10 MS. SWENARCHUK: The author of this paper
11 is Jeglum, John Jeglum, J-e-g-l-u-m, it's one of the
12 many publications that Mr. Jeglum -- this one is
13 entitled: Alternate Strip Clearcutting to Regenerate
14 Black Spruce, Why Aren't We Using It More? And that is
15 the proceedings of a, I believe, Ministry conference of
16 1989 in Thunder Bay. It may be useful for the parties
17 to have that list before them.

18 Now, on that basis, I have no further
19 questions of Mr. Marek as related to his curriculum
20 vitae, Madam Chair.

21 I am requesting that he be qualified as
22 an expert in forest management with particular
23 expertise in regeneration, renewal operations and with
24 further particular expertise in management of black
25 spruce.

1 MADAM CHAIR: Could you repeat the
2 sentence please, Ms. Swenarchuk, I lost you after the
3 first particular expertise.

4 MS. SWENARCHUK: I am asking that he be
5 qualified as an expert in forest management with
6 particular expertise in regeneration and renewal
7 operations, and then further, particular expertise in
8 the management of black spruce.

9 MR. MARTEL: Mr. Marek, in 1968 --
10 67-1968 til about 77 - this is just from my own
11 information - was not most of the emphasis put on the
12 fact that black spruce at that time was the key species
13 that much of the industry was after?

14 THE WITNESS: I mean, Mr. Martel, the
15 figures are showing very clearly that one of the
16 impasses was our regeneration and so on and forth, the
17 demand for black spruce fiber was tremendous.

18 You recall probably that most of the
19 paper making depended matter of fact on black spruce on
20 account it's quality, the fiber quality - and I don't
21 want to go in detail. Without black spruce we wouldn't
22 be where we are.

23 It's obvious that black spruce has been
24 always livehood of our pulp and paper industry, perhaps
25 not our sawmill industry, but our pulp industry, and

1 the practices of - well, as I know them, I started
2 forestry here 1950 - was clearly aimed to exploit black
3 spruce, and in some cases only black spruce was
4 exploited, jack pine was left standing and any other
5 was left standing because they didn't fit the
6 technology of the pulp and paper industry of the times.
7 Situation is improving now I think and perhaps in the
8 next 10, 15 years we see by the revolutionary schanges
9 due to the technology transfer in pulp and paper
10 industry.

11 But the point when I -- matter of fact
12 the reason I'm presenting and I am here today is my
13 concern about black spruce, and I have chosen this
14 specie as a benchmark for improvement of our forest
15 practices. Didn't do too well in the past.

16 There are efforts, frankly efforts made.
17 now somehow get out of this dilema, what are we going
18 to do after black spruce will be not available, or
19 available three, four, 500 miles from the mill.

20 So the technological aspect is very
21 important aspect of this. But I think that you are
22 right, that was the time where I have looked at our
23 forest land and I said, what are we going to do in
24 1985, what are you going to do in year 2000.

25 MADAM CHAIR: The Board wishes to know if

1 any of the parties will be challenging or objecting to
2 Mr. Marek's qualifications as described by Forests for
3 Tomorrow?

4 MS. CRONK: Madam Chair, I won't be
5 challenging the qualification basis as it has been
6 referred to, but we will have some questions about it
7 during cross-examination.

8 MS. SEABORN: I may have some questions
9 as well, Madam Chair, in relation to Mr. Marek's
10 credentials.

11 MR. FREIDIN: The same, Madam Chair.

12 MADAM CHAIR: Well then, there's no
13 objection to qualifying Mr. Marek as described by
14 Forests for Tomorrow as an expert in forest management
15 with expertise in regeneration, renewal operations and
16 management of black spruce.

17 MS. SWENARCHUK: I said, particular
18 expertise in those areas. I'm not detracting from the
19 generality of expertise as a forest manager.

20 I just have one last point to identify
21 relative to that and I appreciate where we're at.

22 Q. I just want to be clear, Mr. Marek,
23 an issue that we haven't dealt with yet. I understand
24 that you remain in contact with European forest
25 scientists and foresters and you maintain some currency

1 with the European forestry literature; is that correct?

2 A. That is correct.

3 MS. SWENARCHUK: I think then we're
4 prepared to move on to the testimony, Madam Chair.

5 MADAM CHAIR: All right. And do I
6 understand we're starting with a slide?

7 MS. SWENARCHUK: Yes.

8 MR. MAREK: I would like to say a few
9 words, please.

10 MS. SWENARCHUK: We will be starting with
11 the slide presentation and it's my expectation, Madam
12 Chair, Mr. Martel, that the slide presentation and
13 commentary on it will take most of today.

14 We do not propose to have Mr. Marek read
15 his witness statement into the record, we filed that
16 with you, and we hope to use the slide presentation to
17 expand upon our understanding of the basis of that
18 witness statement and provide examples through that
19 way.

20 We will later refer briefly to certain
21 elements of the witness statement, but Mr. Marek's
22 elucidation of those issues will occur largely in the
23 context of slides. I just want to do some arranging
24 here.

25 Q. Now, I believe Mr. Marek wants to

1 begin with some introductory remarks and then he will
2 move to his commentary on the slides.

3 A. Madam Chair, Mr. Martel, before I
4 present my slides, matter of fact, before I start even
5 witness statement, I would like to say a few words.

6 It's kind of historical perspective which
7 I have to bring in in order to be better understood by
8 you. Please bear in mind that I'm a third generation
9 forester; my father was a forester, my grandfather was
10 a forester. I have -- my wife and I have two children
11 both in forestry. They are not in Ontario, they are in
12 British Columbia.

13 I stated that forestry is a vocation;
14 it's not a job, it's my life. During my activities in
15 Canada I made -- as a forester I made many friends, I
16 also made many enemies. Perhaps I made the friends is
17 due to my character, to my personality, due to my
18 know-how, discussions, so on. I made friends and I
19 made enemies I said.

20 I am here today not to bash anybody and
21 during the hearings I will be sitting here I will not
22 try to bash Ministry, I will not try to bash Industry,
23 I am going to say what I feel and what I feel very
24 strongly.

25 I have watched changes in Europe for many

1 years since my childhood in the forest lands. Last 40
2 years - it's 40 years now when I arrived here - I have
3 noticed pretty severe changes in the Canadian
4 landscape. I travel a lot from Newfoundland to British
5 Columbia. British Columbia is my second home because I
6 have two foresters to depend on, my children.

7 In this slide presentation I will express
8 my love towards the forest, I also be expressing my
9 dissatisfaction what I have seen and what I still see
10 is being done in some areas to the Ontario forest.

11 I am a forester, I have many colleagues
12 sitting in the audience, I have many colleagues, about
13 850 registered professionals watching me. One wish
14 before I going to start my presentation of my slides is
15 that in order to prevent some of the unpleasant
16 slides -- and just few days ago one of my -- well, he's
17 not exactly my friend but he says, Marek, you're going
18 to bash us to death, you're going to show the horror
19 story. No, that's not my idea.

20 I am very much in favour of
21 communication, meaningful communication, not
22 triviality, I am very much concerned that we improve
23 our forestry practices. I have congratulated foresters
24 in the past and present, even now for some
25 improvements. We are planting more trees than ever, we

1 are engaging in practices which sometimes show a good
2 beginning and so be it.

3 One thing which bothers me and I will say
4 it right now, that the role of forester is two-fold:
5 The one is a productive one, where we harvest forest
6 for the benefits of society and also for benefits of
7 the forest itself, so that is the productive. The
8 other one is protective.

9 What bothers me, and you will see in my
10 slides the descriptions and during my testimony, that
11 Ontario foresters in general, not all, did not as yet
12 understand and are guided by the protective role of
13 foresters in the forest land.

14 Thank you.

15 Q. Do you want to begin with slide No.
16 1 now, Mr. Marek?

17 A. Okay.

18 MS. SWENARCHUK: Excuse me.

19 MR. HUFF: Are you ready, Mr. Marek?

20 THE WITNESS: Go ahead.

21 MS. SWENARCHUK: You will have to speak
22 up.

23 THE WITNESS: The aim of my presentation,
24 including the slide presentation, is mainly black
25 spruce. I will mention some other species here and

1 there, jack pine, our trembling aspen, but it mainly
2 concerned itself with black spruce. And in order to
3 make it more understandable for you, I will start with
4 black spruce from the beginning, I will go through the
5 dynamics as I understand it and studied for 40 years.

6 And the first picture shows natural black
7 spruce seedling growing on mosses and that picture was
8 taken in the Clay Belt. Black spruce is a unique
9 specie. I will describe the characteristics later on,
10 but the reason I have chosen this picture to show is
11 this is a two-year-old -- pardon me, the location of
12 black spruce root system which is called frequently a
13 plate-like direction, as a very shallow root system.

14 And that is unique because maturity of
15 trees throughout the world from Soviet Union right
16 through to Europe and then -- most of the specie,
17 coniferous species and also the deciduous species have
18 an ability, morphological ability to produce root
19 system which goes with the gravity down into the deeper
20 horizons of the soils.

21 Black spruce is -- and that's what
22 perhaps was surprise to me when I came over here
23 because, as you probably know, black spruce is a
24 Canadian species, black spruce doesn't grow in Siberia
25 yeah, black spruce doesn't grow in Finland, Norway,

1 Czechoslovakia, it grows mainly in the northern boreal
2 forest in Canada.

3 Now, obviously you can outplant and you
4 can transfer as exotic species anywhere in the world,
5 but here are the trees which, for one reason or the
6 other, have a root system which is very flat. It's
7 frequently described as a plate-like root system.

8 The reason I am suggesting this to you
9 here to understand later on what I'm going to say about
10 black spruce about the damages, the capability of black
11 spruce and so on. So black spruce you can see these
12 strings here are right -- go to the surface of the
13 humus. You can see these roots here.

14 In other words, the feeders, the tips of
15 the root system we call feeders - and I have studied
16 them, I have seen them and studied them on the
17 microscope - they always, for one reason or another,
18 will get into the upper strata of the humus for very
19 specific reason; they feed there, nutrients and
20 moisture is supplied here, not down here.

21 Next one, please.

22 Q. This is now slide No. 2.

23 MR. FREIDIN: Could that be focused any
24 better?

25 THE WITNESS: That's probably good.

1 MR. FREIDIN: Okay.

2 THE WITNESS: The reason I am taking this
3 picture, and it was taken in 1957, was the ability of
4 black spruce to grow; matter of fact, do very well on
5 conditions unacceptable to other species.

6 Here is a typical boreal forest granite
7 bedrock, this white here. Here is an organic material,
8 no soils at all, just fully decomposed, partly
9 decomposed layer of humus which can support growth of
10 black spruce. It not only support well, but extremely
11 well in some cases. So black spruce is one species
12 which can grow very well under these conditions. That
13 makes it unique.

14 Next one, please.

15 MS. SWENARCHUK: Q. Slide No. 3.

16 A. Okay. During the logging operation,
17 during the road building operation, this is the site
18 which I did many years back where the organic material,
19 the humus, as you have seen in previous picture, is
20 removed, it was scraped. Now, look what you are
21 presenting, bare granite and rock.

22 In a microcosm in previous slide you can
23 see that little white exposed hole there; here you can
24 see on the larger cosm here, you can see how black
25 spruce can live on it and lives very well. Here is

1 standing timber of pure black spruce.

2 Next one, please.

3 Q. Excuse me. Mr. Marek, is this what
4 you would refer to as a fragile or sensitive site?

5 A. That is correct. Those are sites
6 which are extremely fragile and in ecologic term you
7 can call it unstable because the stability of the site
8 is so vulnerable.

9 Q. And do you have an estimate in your
10 mind as to what proportion of the boreal forest--

11 A. Represents?

12 Q. --is represented by sites that you
13 would describe as fragile or sensitive?

14 A. That is correct. Depending on a
15 region, for instance in the lowlands, Hudson Bay
16 lowlands or in the Clay Belt - we call it Clay Belt, I
17 suppose you are aware of this term Clay Belt - you
18 don't see this too often. Once you go into the
19 northcentral region and western region you are very
20 frequently, very frequent, representation is much
21 larger.

22 When you ask a percentage, we have done
23 some study in Nipigon District and it's obvious in many
24 areas that you are up to 50, 60, 70 even per cent of
25 representation of these sites.

1 Now, this is picture from Clay Belt and,
2 again, black spruce is capable, grow on sites which
3 have a partly or fully decomposed organic layer and you
4 have the physical material, soils made of clay.

5 Q. This is slide No. 4, for the record.
6 Go ahead, Mr. Marek.

7 A. Again it supports nearly pure black
8 spruce stands with white birch, I suppose.

9 Next one, please.

10 Q. No. 5.

11 A. Shallow till over bedrock, Armstrong
12 Management Unit. Now, shallowness is expressed
13 frequently in the measured depths in centimetres and
14 feet, and here we have again the very - and the measure
15 is from one foot - and here is bedrock underneath,
16 again the typical black spruce site.

17 Next one, please.

18 Q. No. 6.

19 A. Here is the organic soil which black
20 spruce is grown on, and you can see the bright dark
21 organic partly and fully decomposed right down to the
22 clay or, in some cases, you get the bedrock underneath.

23 Next one, please.

24 Q. No. 7.

25 A. Up to now I have shown you what black

1 spruce is grown on, the different sites, the different
2 depths of the soil, here I am now looking at the stand
3 itself.

4 This is a typical fire originated nearly
5 pure black spruce stand in the north central region.
6 These stands are the livelihood of our pulp and paper
7 industry, has been exploited since the beginning of
8 establishment of these mills up north along the north
9 shore.

10 They are even-aged; in other words, they
11 were established plus/minus one to four years after
12 fire -- natural fire, fire which may have originated by
13 lightening, which may have originated by CNR
14 construction or CP construction way back in 19th
15 century.

16 This fire went through I suppose 1820, in
17 that vicinity, and established these spruces. Their
18 character is distinct by the form of black spruce;
19 clean, bold. This forest was made of so-called feather
20 mosses. I have studied these stands for many, many
21 years. This stand is gone long time ago, and I will
22 show you later on what's happened if you do something
23 or if you leave it.

24 Next one, please.

25 MR. MARTEL: Pardon me. Did you say this

1 forest is gone long years ago?

2 THE WITNESS: It's gone, it was
3 harvested.

4 MR. MARTEL: Oh, okay. Pardon me.

5 THE WITNESS: It was harvested.

6 MR. MARTEL: All right. Fine, thank you.

7 MS. SWENARCHUK: Q. Now, Mr. Marek, do
8 you recall the number of cords per acre approximately
9 that was taken from this stand?

10 A. Well, I remember this one because I
11 used it for Plonski yield tables way back in 1960 I
12 think or '59 and expressed in cords, which is the unit
13 volume for measuring the wood, it was approximately 35
14 cords per acre. So you have to multiply and get it in
15 hectares and so, but I'm --

16 Q. Approximately 87 cords per hectare;
17 does that sound right?

18 A. Yeah, something like that.

19 Q. Now, how does that compare to the
20 average cords per acre for total productive forest
21 lands, approximately?

22 A. Yeah. Total productive forest,
23 including all working groups - and you are familiar
24 with the term working groups, it's mixed woods and
25 other species, okay - this of course is very high

1 volume stands. Now, I wouldn't say it's the highest
2 because in some jack pine stands we can get higher yet,
3 but in general it's way above the kind of norm which
4 was established way back in '50 by Plonski which
5 suggests that we have approximately 16 cords per acre
6 overall in the productive forest lands. So 16 cords,
7 and this one is 35 cords and, again, talking cords per
8 acre.

9 So you can see that these sites really
10 are high volume stands and, as I mentioned before, they
11 are the main component of our pulp and paper industry
12 production.

13 Next one, please.

14 Q. This is slide No. 8.

15 A. Slide No. 8 represents typical forest
16 floor made up of feather mosses in Lake Nipigon Forest
17 on Domtar licence. Picture was taken 1960. I suppose
18 these conditions were not maintained because due to
19 cutting many changes happen, however, express very
20 clear the microcosm of the feather mosses which are
21 very important to -- in connection with the survival,
22 germination and the whole dynamics of black spruce.

23 These species one -- holistic one of
24 course here and the other one are very closely tied
25 together, as I'm going to explain later on, and this is

1 the kind of ecosystem which I have studied for many
2 years.

3 Next one, please.

4 Q. Slide No. 9.

5 A. Again - this has been scratched but
6 the slide got stuck and damage it here - but again,
7 represent typical black spruce, nearly pure black
8 spruce stand growing on feather mosses, extremely
9 shallow, rocky site, very little soil - and I am
10 talking about physical soil - and spruce is doing very
11 well.

12 This stand was -- this picture was taken
13 north of Armstrong during our cruising there way back
14 in 70s I think and represent the variation in terrain.
15 The first slide show fairly flat terrain and here is
16 quite a precipitous terrain but always feather mosses
17 on the ground.

18 Next one, please.

19 This is picture taken in Long Lac area.
20 Again it's organic site; in other words, the spruce is
21 growing on very deep, organic material and you can see
22 the slightly different form, slightly different branch
23 and also slightly different floristic representation of
24 the forest floor.

25 Q. Now, Mr. Marek, do slides 9 and 10

1 illustrate the differences between lowland and upland
2 spruce stands?

3 A. That is correct. The reason I
4 brought this picture, again, show the variation black
5 spruce can adjust to and reproduce itself and also grow
6 very well. No other species is able to do that, black
7 spruce is unique in that way.

8 Next one, please.

9 Q. Slide No. 11.

10 A. Winter scene of matured black spruce
11 stand in Lake Nipigon Forest, Domtar. Picture taken
12 way back 1960, ah, two, three feet of snow, kind of
13 winter scene we are going to have pretty soon. Only
14 problem this, we are missing these stands, they are
15 gone.

16 Next one, please.

17 Q. Slide No. 12.

18 A. Black spruce can adjust and grow on
19 really very severe extreme conditions; in other words,
20 just the bare rock and boulders. And here is one of
21 these stands which is classified usually on the FRI
22 map, forest inventory map, as a protection forest
23 reserve, be a park.

24 And when I worked with Plonski on the
25 yield tables here back in 50s, we were discussing how

1 we going to call these bald rocks country, and we
2 finally decided PFR is the proper term, protection
3 forest reserve, and protection should be hyphenated
4 here because from the protective point of view these
5 stands are extremely vulnerable; in other words, if you
6 break up them or if you do some severe interference
7 with the natural processes, natural disturbances versus
8 the man-made disturbance, you may find yourself in very
9 serious trouble to get anything growing on it for quite
10 a few years.

11 I am trying to say that nothing will
12 grow, I mean, there will be always forest in Ontario,
13 but we definitely do not get back what were there
14 before, or if it's happen, it's going to happen on a
15 long, long period of time.

16 Next one, please.

17 Q. This is slide No. 13.

18 A. Black spruce transition site - note
19 mixed wood uplands. Okay. Again, ths picture was
20 taken way back when I flew with helicopter and it more
21 or less show the cosm or the microcosm of this
22 distribution. Poor black spruce stand on a transition
23 site, and by transition site I mean the terrain is
24 gradually sloping down to the lowlands, very well moist
25 area, nicely moving water, drainage here, not disturbed

1 and at the uplands, at the tips of or the tops of these
2 here you can see more trembling aspen.

3 This kind of situation is not unique for
4 Domtar, this is throughout the whole north central;
5 matter of fact, even eastern region, northeastern --
6 pardon me, northern region and right down to Manitoba
7 boundary and beyond Manitoba boundary, you can
8 frequently find this condition. But it represent the
9 pureness of black spruce here, and also the terrain I
10 am talking about.

11 Next one, please.

12 Q. No. 14.

13 A. This slide represents several square
14 kilometres of black spruce, nearly pure black spruce
15 stands. Again, the history is the fire was going
16 through 1835, previous century, and nature establish
17 these stands without any problem of the wild fire.

18 These stands are gone, they were
19 harvested in the past, and, again, I will come back so
20 it's kind of historical momentum here where I'm going
21 to come back, and say: Okay, what we got now. So
22 please keep that in mind that this is a picture which
23 was taken 1958, I think, right.

24 Next one, please.

25 Q. Slide No. 15.

1 A. Detail of same area, nipigon, okay.
2 This is the same thing in winter, and when I was
3 investigating way back in 50s the condition and tried
4 to wrestle with what are we going to do with it and how
5 are we going to regenerate these things and so on, it
6 appeared to me very clearly that in many of these
7 areas - depending on the age-class and disturbance than
8 by the nature itself, that means by blowdown, insects
9 and so on - has a very peculiar and very dramatic
10 aspect and; that is, when these stands which were
11 originated by fire and perpetuated by fire for many
12 generations since glaciation, since last glacial move
13 up north, have a certain pattern and that pattern is
14 that wild fire perpetuates the stands and the biome --

15 THE REPORTER: Sorry?

16 THE WITNESS: Biom, B-i-o-m, biom.

17 MS. SWENARCHUK: Q. B-i-o-m-e?

18 A. Yeah. This pattern appears when you
19 look at these sequences in natural disturbance in the
20 forest after wild fire; in other words, wild fire
21 establish the stand and then the stand grows and all of
22 a sudden reach the maturity and reach old maturity
23 possibly, but the fire intervene again and the cycle
24 start over again. But how does it start, how is it
25 encouraged, what are the strategies of nature to do so?

1 And one of the strategy is that these
2 stands grown very drastic changes in a later -- or late
3 years of their growth, and that's happened through the
4 blowdown. In many instances blowdown is caused by
5 pathogen, as a root rot, weakens the root system, down
6 blows the tree, down goes the tree in patches. And it
7 occurred to me that this kind of pattern can be
8 followed through the different ages of this aging of
9 the stands.

10 This picture was taken in one area where
11 the stand was I think 100 years old.

12 Next picture, please.

13 Q. Excuse me.

14 A. Yes?

15 Q. Fine, you can go on with that one.

16 I'll ask the same question there. Go ahead.

17 A. When I examined the later
18 age-classes, say 20 years after or 15 years after and I
19 discovered, look at this, there is much more blowdown,
20 look at this. There was only one or two holes or these
21 openings in the previous picture, in other one here,
22 here, there, everywhere.

23 And it just occurred to me that perhaps
24 these stands at age of 120 or 130 and 140 should have
25 been burned long time ago; in other words, the nature,

1 if it was left alone and without interference of man by
2 fire protection, monitoring the fire causes and so on,
3 that these stands should have been gone long time ago
4 and started the cycle again.

5 In other words, fire would have gone
6 through, a new generation of tree would be -- site
7 would be site prepared, new generation of trees would
8 be established and eventually the thing would be
9 rejuvenated.

10 So I went and examined more in detail and
11 it just occurred to me that after I have examined many
12 natural wild fires - and this I think is where I
13 learned my lesson - examining many fires, going through
14 it, see what fire does, how it starts and so on, that
15 there must be some cause for this; in other words, the
16 cycle is directed, monitored by nature.

17 In other words, to establish wild fire or
18 get wild fire's goal and achieve their goals there are
19 certain prerequisites necessary, and one of them is
20 that you have to have a fuel or arrangement of the fuel
21 in such a way which encourage to achieve the final
22 results which is the regeneration of the stand.

23 Well, how do you achieve in nature this
24 kind of site preparation or stand preparation for fuel
25 and fuel arrangement? Blowdown is one of them. In

1 order to have a fire and, as I said, I have studied
2 dozens and dozens of wild fire on the site, it can have
3 a momentum, it can have a fuel, that fuel is there on
4 the ground, blowdown, dry fuel, fire occur by
5 lightening, bang! there it goes, the whole area goes in
6 flames.

7 So this is a strategy which I think is
8 worthwhile and I have been discussing with many
9 scientists, Vagner and other scientists, and we agree
10 in general that the strategies are obvious, you got to
11 have a condition which develop throughout the stand
12 growth which attack the total forest land.

13 And here when the fire starts, no doubt
14 MNR will not have a chance to get it out, it's going to
15 go to achieve these objectives which is a perpetuation
16 of the biome itself; in other words, black spruce
17 forest.

18 Next one, please.

19 Q. Mr. Marek, with regard to blowdowns,
20 have you seen many instances of blowdown during your
21 years of forest management?

22 A. Of course.

23 Q. Yes.

24 A. When you deal with mature or
25 overmature forest, in the case we have predominancy of

1 mature, overmature forest - now, this is gone of
2 course, this has been harvested - but many of our
3 stands which are a result of these burns in 1800s and
4 early 1900s, they are affected by blowdown.

5 Q. And has the size of area affected by
6 blowdown that you have observed varied greatly; have
7 you observed blowdowns in varying sizes?

8 A. That's right. Well, you can see the
9 sequence of these two slides, it started small and
10 become bigger. Yeah, that's right.

11 Q. And in your experience, is there
12 patchiness in the blowdowns that you have observed?

13 A. Very much so.

14 MS. SWENARCHUK: Madam Chair, Mr. Martel,
15 when did you wish to take a break, at this point?

16 MADAM CHAIR: This would be convenient,
17 Ms. Swenarchuk.

18 MS. SWENARCHUK: Thank you. Very well.

19 ---Recess taken at 10:30 a.m.

20 ---On resuming at 10:50 a.m.

21 MADAM CHAIR: Please be seated.

22 THE WITNESS: Madam Chair, I would like
23 to go back to the previous slide.

24 MS. SWENARCHUK: Q. This is slide 16.

25 A. Slide -- that's slide No...?

1 Q. 16.

2 A. Okay. In meantime, when you find
3 this condition -- meantime I would like to take a
4 closer look what's happening with these openings and
5 what's happening inside of this stand, and that's going
6 to deal partially with problem of succession, problem
7 of species which get into the ecosystem or into the
8 stands "without permission" of the nature.

9 Could you please turn up the next slide.

10 Q. This is slide 17.

11 A. Okay. This is slide 17. Detail of
12 same: Note advanced growth of balsam fir in the same
13 area.

14 So let's get down from the helicopter and
15 look at the detail of these stands, and you will find
16 out very interesting changes, and please recall the
17 simple ecosystem of black spruce with that clear
18 floor -- forest floor covered by the feather mosses and
19 without openings; here we have openings in the picture
20 where blowdown and the natural disturbance causes quite
21 a change and the change which I always was interested
22 in was floristically what's happening, what kind of
23 successional species we have or we are confronted with
24 against the normal rules of nature.

25 And what's happened there quite

1 frequently, and I am speaking about specific areas, I
2 realize that you cannot broadly transcribe or apply
3 this situation across the board from Clay Belt to
4 Kenora, but in many instances in these so-called
5 transition site uplands you will find that in these
6 openings I have seen from the air very interesting
7 change happened and; that is, so, we look at blowdown
8 here, the trees collapse, go to the ground, eventually
9 become buried in these feather mosses, but other specie
10 occur on the scene which was not there before under
11 natural disturbance, fire.

12 The appearance of balsam fir, that
13 appears as the advanced growth and the reason for the
14 appearance of balsam fir and its duplicity; in other
15 words, numbers is very dictated by protecting this
16 forest from wild fire.

17 Well say this is 140-year-old stand, 130,
18 120-year-old stand, appearance of balsam is probably
19 there for last 20, 30 years; these trees were young,
20 20, 30, these are balsam fir trees.

21 If this condition were allowed to
22 continue and not interfering with natural processes as
23 wild fire, what's happened here eventually the density
24 of this stand will lower, more balsam will establish
25 and eventually you are going to find yourself with a

1 problem of advanced growth which may survive all these
2 calamity and going to present us with a new balsam fir
3 stand.

4 Now, why is balsam introduced here or we
5 allowing to introduce balsam fir? It's very simple;
6 balsam has a root system which is adapted to deep, it
7 can get established on a deep humus layer, survive and
8 because it is a specie, a tolerant specie, can do
9 fairly well.

10 In meantime, of course, the regeneration
11 of black spruce cannot take place because the condition
12 of the forest floor is such that the black spruce root
13 system which is, as you know, a very shallow one, very
14 tunnel surface-like, cannot get established and will
15 have a problem in these feather mosses. This is
16 accentuated mainly when you clearcut this area all of a
17 sudden and the feather moss is exposed to the sun
18 radiation, drying out, dessication will favour balsam
19 fir against the black spruce.

20 So what we have done for many, many years
21 is that by eliminating natural disturbance, wild fire,
22 by eliminating or preventing perhaps even blowdown in
23 some case, which have a very similar effect on black
24 spruce, that we have maintained the condition where
25 black spruce cannot be naturally established in large

1 areas of this condition in northern Ontario.

2 In Clay Belt you have a problem if sites
3 are being occupied by species like alders, in many
4 areas even trembling aspen can occupy these conditions.
5 So the main reason is to show you, Madam Chair, that
6 these conditions are unnatural. These conditions never
7 been here before because history show us that
8 generation after generation these stands were destroyed
9 by the wild fire, by the natural disturbance, and be
10 perpetuated by the system, ecosystem itself.

11 So there is certain involvement which is
12 very important one and foresters should learn from this
13 by applying some of these conditions or mitigating some
14 of these conditions in order to achieve black spruce
15 regeneration and not to achieve balsam fir
16 regeneration.

17 For many years I fought a battle really
18 battled, telling Industry and MNR that this
19 regeneration which we got for nothing, which was free
20 going to be our curse one of these days, and this is
21 happening now in many areas and happening in many areas
22 before where balsam fir is susceptible to spruce
23 budworm, an insect which can the completely wipe out
24 the so-called free regeneration and present us with
25 problems that we don't get anything, we don't get black

1 spruce regeneration, we don't get balsam regeneration,
2 and all of sudden there it is, we don't get so-called
3 free nothing.

4 But this is just one of the scenario.

5 There are many other scenarios which may be
6 site-specific, which may be regional specific, and
7 varies even in certain area of licence, but this is one
8 good example that we are, in many instances, producing
9 situation which is unique and never been here before
10 because nature does not allow these conditions, and
11 always assure regeneration of the primary species, in
12 this case, black spruce.

13 Next one, please.

14 Q. Mr. Marek?

15 A. You have a comment.

16 Q. If that site is harvested, what
17 action would be necessary to prevent the site being
18 taken over by balsam fir after the harvest?

19 A. Well, let me describe two scenario,
20 counsel. One is that we harvest fully black spruce,
21 leave balsam fir standing or damaged by logging
22 operation and leave the site alone; then, of course, we
23 are going to get mishmash of balsam fir, probably some
24 other species occupy, some of the ericaceous plants and
25 some of the species, perhaps birch and poplar

1 eventually will come back, if we don't do anything.

2 The other scenario, of course, we
3 clearcut this and leave balsam fir standing; in other
4 words, not eliminating balsam fir and plant it; what we
5 are going to get is balsam fir is going to reseed
6 itself and we're going to get influx of species like
7 balsam fir into the cut-over, regardless if you cut it
8 or not, and eventually you're going to find again this
9 mishmash of balsam fir and black spruce, regardless how
10 much effort you are going to do in planting this site.

11 The first scenario, of course, is that we
12 clearcut the area and eliminate balsam fir altogether,
13 which I have done many times in order to get rid of the
14 balsam because balsam does not belong there in the
15 first place, then planted it, then we have artificial
16 established forest plantations with its risks and, of
17 course, benefits -- possible benefits.

18 The other scenario, of course, is that we
19 do it by modified cutting methods; in other words, that
20 we partially, or in parcels we harvest the black
21 spruce, do proper site preparation, eliminate the
22 balsam fir and then get natural regeneration of black
23 spruce.

24 So these are scenario which -- or
25 prescriptions which the foresters has to deal with.

1 Now, I will be dealing later on what results you may
2 get, what dangers you are encountering, and so on. So,
3 does it answer your question?

4 Q. It answers that question. My further
5 question, just to be clear: Is it the practice
6 generally speaking of the Industry and the Ministry now
7 where such stands occur, to remove the balsam fir at
8 point of harvest?

9 A. No, they don't, that's one of the
10 problem which I have seen right across in northern
11 Ontario boreal forest; that while some damage is done
12 to it, the balsam fir is still going to persist, going
13 to be still a seed source, thus endangering the
14 restocking of the area to black spruce only.

15 See, in this case these are black spruce
16 stands from nature and they should be kept that way.

17 Q. Why should they --

18 A. Beg your pardon?

19 Q. Why should they be kept that way?

20 A. Why should they? This is a gift by
21 nature given to us, we are harvesting, so we should
22 repopulate and perpetuate the same species, not allow
23 balsam to move in and endanger the whole ecosystem
24 which eventually develops. Simple, we want to have
25 black spruce back as nature give us for thousands of

1 years, let's put it back, let's regenerate these sites
2 to black spruce. Surely we know how or we should know
3 by now.

4 MR. MARTEL: What's the objection to
5 doing it the way you suggest?

6 THE WITNESS: Well, the objection is
7 clear that many of these stands --

8 MS. SWENARCHUK: Could you clarify your
9 question a bit, Mr. Martel.

10 MR. MARTEL: Yes. Mr. Marek has
11 indicated that he's advocated one way of doing it to
12 allow nature to regenerate the area naturally--

13 THE WITNESS: Yeah.

14 MR. MARTEL: --because that's what the
15 sites have been there for hundreds of years.

16 THE WITNESS: Thousands of years.

17 MR. MARTEL: Thousands of years. I'm
18 asking what the objection is, or why people then, if
19 that's the case, what would anyone -- or why would
20 anyone not want to follow this suggestion and go some
21 other route to regenerate with the expense that's
22 occurred with planting and so on?

23 THE WITNESS: That will be by natural
24 regeneration; in other words, what we were asking for
25 is a seed source, seed source. You have got to have --

1 for natural regeneration you've always got to have a
2 seed source, and if you have seed source in place you
3 cannot remove all trees; right?

4 MR. MARTEL: Yeah.

5 THE WITNESS: Okay. How you technically
6 operate, how do you prescribe this matter is by
7 modified cutting, by cutting where you need seed
8 source, site prepare the mosses to have the microsites
9 prepared and natural regeneration occur.

10 The problem with this is that for 50
11 years now we have clearcut these areas leaving it alone
12 and now we have decided in our wisdom that in order to
13 put these sites back you clearcut it and plant.

14 Now, of course, by that you don't achieve
15 natural regeneration; so you are changing the ecosystem
16 by removing all seed source, by removing perhaps some
17 protective aspect of the stand trees, and by not
18 understanding well how you site prepare these sites in
19 order to prepare seedbeds in natural regeneration, that
20 we simplistically predeterminedistically clearcut it and
21 plant it.

22 That is kind of procedure which many
23 companies and many, many Ministry prefer because it's
24 simple, it's very simple and it's simplistic. It's
25 used, both form; clearcut it, send a bunch of people

1 there with shovels and plant it and trees going to be
2 as before. And during my testimony later on, Mr.
3 Martel, I'm going to try to document what we are doing
4 really.

5 MR. MARTEL: So I guess what I'm trying
6 to get at: What's the advantage, is it strictly an
7 economic advantage to do large clearcuts and then have
8 the regeneration paid for by someone else?

9 THE WITNESS: Yeah.

10 MR. MARTEL: I mean, what's the
11 advantage --

12 THE WITNESS: Well, that's a big
13 advantage; isn't it, that's a big advantage. But let
14 me point out, Mr. Martel, that the advantage is being
15 many time justified or quite frequently - and I went
16 through this discussion, I guess til Doom's Day - that
17 artificially produced plantation are producing or will
18 be producing for the society better trees, better
19 yields in shorter rotation, and that is the Magna Carta
20 of artificial regeneration over planting trees.

21 Now, I like to explain you, before we get
22 into detail there, that this can be scientifically
23 applied and very well applied for a species like pines,
24 this can be done for species -- I have seen plantation
25 Alabama and Florida - and where did I go - in Sweden,

1 Finland, everywhere, that indeed plantation of trees is
2 very good business, but when it comes down to black
3 spruce we must consider that we are changing the whole
4 ecosystem here, that the stability of the new stands by
5 reproducing them artificially, by planting, they are
6 producing many risks and these risks are very costly or
7 may be very costly if we don't realize that we are
8 changing total ecosystem here.

9 So the preventive measure would be go
10 back to the natural regeneration and perhaps I should
11 put it this way. By saying that I prefer natural
12 regeneration of stands should be quantified by the
13 stand's situation. If that stand is run down so badly
14 that natural regeneration cannot be accomplished by
15 lack of seed source, too much blowdown and all of these
16 aspects which develop after maintaining these natural
17 system forever, for long time of time, they shouldn't
18 be there, they should be burned they should be
19 regenerated by wild fire long time ago, but if we
20 persist for economic and for reasons of harvest of
21 utilizing the resource, then we must be very, very
22 careful to follow these conditions so our prescriptions
23 are the right one.

24 So, sure, when the stands are in the
25 run-down condition, blowdown condition where you have

1 just vast mess of blowdown timber, what else you going
2 to do with it, you have to harvest it and you have to
3 plant trees - and I have done it for many, many years -
4 but, on the other hand, when you have a condition
5 instead which could be natural regeneration --
6 naturally regenerated, then I beg you to understand
7 that indeed there are ways to do it; put the site into
8 the production the proper way and not the wrong way.

9 Is that satisfactory?

10 MR. MARTEL: Yes, thank you.

11 THE WITNESS: Next one.

12 MS. SWENARCHUK: Q. This is slide No.
13 18.

14 A. Let's be guided by nature for a
15 moment, let's forget about the high technology and
16 let's forget about wishes of regenerate the forest in
17 such a way as they do in Alabama, Florida or -- and
18 let's go to boreal forest. How does nature show us
19 that it works and this term "it works", is an important
20 one because in forestry it works or it doesn't work is
21 misused all the times.

22 It works, it works here. We have a
23 beautiful regeneration aged maybe five years, it works,
24 forgetting these other 10 years, 50 years coming up to
25 get the results. This is how nature show us the way

1 how to do it.

2 This is regeneration -- what slide number
3 is that, please?

4 Q. This is No. 18.

5 A. 18. Detail of the same: Opening
6 filled in with natural regeneration of black spruce and
7 some balsam fir, Lake Nipigon Forest, 1989.

8 This is regeneration which occur in the
9 opening mainly due to the blowdown; in other words,
10 remember these patches from air, remember these
11 patches. In some cases and in many cases these opening
12 patches are occupied by black spruce. Now, there may
13 be some balsam with it, and I know very well that some
14 of these people are going to say: Well, it's balsam;
15 it isn't, it's a mixture of balsam. This is balsam
16 fir, this is black spruce I can tell you.

17 But the thing what I want to expres here
18 that nature, even by other means, when fire can
19 perpetuate very similar stands by opening.

20 The area opens up, blowdowns fall down,
21 this plate-like root system, exposed mineral soil, all
22 of the stratas indicative of the site itself, sometimes
23 it's just a trace of soil, sometimes just the bare
24 humus, but the protective mechanism of limited size
25 opening the nature can establish its own species back,

1 maybe not as in relation to stocking as happened by
2 fire, but always black spruce will be dominant and
3 taking care of that balsam.

4 In other words, the balsam will be a
5 minority whereabouts in some present life the balsam
6 will be majority and we have to prevent that.

7 Q. Now, Mr. Marek--

8 A. Yes?

9 Q. --what are the conditions that will
10 allow black spruce to dominate in the new stand as
11 opposed to balsam as you indicated in the previous
12 slides?

13 A. The protective mechanism of a natural
14 disturbance in nature and it's way to protect the
15 species which belong to the site, and that is by, No.
16 1, openings, small openings; No. 2, protection, affect
17 of residual standing timber, enough seed source and
18 many of the factors which are related to the benefits
19 of natural regeneration versus artificial regeneration.

20 Mr. Martel, that partly also answers your
21 question that, in this case, the protective standing
22 timber which is surround this area influence stocking
23 and influence the density, influence also the quality
24 of regeneration which is established; primary species
25 versus species which do not belong there.

1 Does it answer it? Is that understood?

2 Q. Are there microclimatic implications
3 in this situation that affect the regeneration?

4 A. Yes.

5 Q. Could you expand?

6 A. In black spruce mainly. When you are
7 talking about jack pine regeneration, when you are
8 talking about other species, does not apply as well as
9 applied for black spruce, because I have indicated and
10 I will indicate it again that I from my observation do
11 not think that black spruce is an intolerant pioneer
12 specie, and I give you reason later on why comparing to
13 jack pine and so on.

14 I know this has been questioned by the
15 interrogatories and I will deal with it as much as I
16 can.

17 So next one, please.

18 Q. This is now slide 19.

19 A. Now, here's a situation where the
20 stand deteriorated so badly -- what slide number is it,
21 please?

22 Q. 19?

23 A. Yeah, it's 150-year-old black spruce,
24 probably poor black spruce which deteriorate so badly
25 that the forest manager going to say: What the heck I

1 going to do with this, this is a mess. Well, it's a
2 mess because it left there for 150 years or 160 years
3 by now because this shouldn't happen, and, of course,
4 you cannot keep nature, you cannot keep dynamic of the
5 nature and say: Now, I am coming here with my
6 harvesting and I going to, yeah, you can't.

7 There's one thing about nature, nothing,
8 nothing is steady, change is going through against our
9 wishes. So that's a stand which deteriorating in such
10 a condition that a forest manager probably has one way
11 to do it, he can try for natural regeneration and hope
12 for some - see, here's that plate-like blowdown of
13 black spruce - he going to get some stocking there no
14 doubt about it and he going to get probably some
15 result, however, when you look at the whole composition
16 and situation of the stand you have to realize: Well,
17 I probably have to clearcut it and take a pick and
18 shovel or shovel in this case or some kind of planting
19 tool and replant it and so on, so...

20 But what I am saying, this is a product
21 of our wishes because it would have never happen if he
22 let nature go, that would have been fire originated
23 probably 40 years ago.

24 It has been testified by many during
25 these hearings that the periodic occurrence of fires as

1 a regeneration tool is something we know very well
2 about; in other words, these stands when they reach the
3 age between 70 and hundred years going to be burned by
4 nature and new generation of trees established of the
5 same species. By prolonging the dilemma through the
6 protection, not allowing the fire to take its course,
7 we introduce these elements.

8 Next one.

9 MR. MARTEL: Well, would you reduce your
10 fire suppression then in the province?

11 THE WITNESS: Gosh! Let's put it this
12 way: I think that we have progressed quite a bit from
13 fire fighting to more intelligent fire fighting and for
14 more intelligent protection, but I think that in many
15 instances we are still failing; perhaps in areas where
16 fire would do the job, let the fire go.

17 Now, of course, there are practical
18 implications where people going to say: Well, you
19 cannot let it go because it will burn my shack, it's
20 going to destroy my private property, And minister
21 going to hear about that one.

22 So I think that fire protection, people
23 do their best; on the other hand, I think that what
24 perhaps should be done and brought to the knowledge of
25 the public that fire is a very important tool, not only

1 by use of prescribed burning but also wild fire in
2 areas which are -- you know, we are expecting say new
3 forest being created for next 40, 50 years. Well, let
4 it burn. If you cannot get to it, let it burn.

5 And I think that the policy so far didn't
6 change very little. Smokey the Bear is still the
7 syndrome of fear of propaganda where everybody, you
8 know, feel that little Bambi is going to get burned -
9 you know what I'm talking that little Bambi there, that
10 little deer and so on - and I think that there are
11 certain things correct, it's poorly interpreted and
12 given to the public as a scientific tool, as a
13 scientific management.

14 MR. MARTEL: But you would have to then
15 have a very accurate--

16 THE WITNESS: Prognostication.

17 MR. MARTEL: --inventory, yes, to
18 determine what areas you should allow to burn.

19 THE WITNESS: Oh, you're dead on. One of
20 the problem, Mr. Martel, we have is that we haven't got
21 the "accurate inventory" and I am going to go into it
22 hopefully later.

23 MR. MARTEL: Okay, fine.

24 THE WITNESS: We got to know what we got
25 first; do we?

1 MR. MARTEL: Right.

2 THE WITNESS: Okay. Next one, please.

3 MS. SWENARCHUK: Q. This is slide No.

4 20.

5 A. This is final slide of what can
6 happen to black spruce forest. As you see it at the
7 beginning, after it leads to the final dilemma, what are
8 you going to do with it. This is a 180-year-old stand
9 bypassed by company because 20, 30 years ago there
10 wasn't enough black spruce there, it was messed anyways
11 so let's bypass it, and that is what it deteriorates
12 to, that you have a stand of various ages, various
13 species, not a black spruce sometimes at all it's
14 balsam and dead stumps and so on.

15 And I think that these are again too very
16 important, that the dynamic of the stands are ever
17 changing. Baskerville I think expressed it so
18 beautifully when he -- in his statement he said: Okay,
19 we have thousands different forests, everybody who that
20 thing there is one boreal forest or 10 boreal forests
21 according to working groups is wrong; we have thousands
22 of different conditions, dynamics which we have to
23 monitor and we have to cope with it and we have to find
24 answer to.

25 And this answer, of course, simple: What

1 are you going to do with that mess? It's 180-year-old,
2 original was beautiful black spruce, the company bypass
3 it because it wasn't enough merchantable timber there,
4 so leave it to the nature. Well, I wish I was, you
5 know, that position say what it's going to look in next
6 20, 30, 40 years.

7 But again, this is a problem of our
8 access to harvesting area, the prescription we are
9 guided by and the kind of a casual approach to our
10 forestry practices, which I think should be "passe",
11 we can't afford it anymore. We have to make -- yes?

12 Q. Mr. Marek, in your opinion, what
13 could have been done or should have been done to
14 prevent this situation?

15 A. Well, first of all, I would have
16 probably, if I knew the exact inventory and be
17 knowledgeable about the area under my jurisdiction, I
18 would have picked up this area and said: Let's harvest
19 this first and then, of course, I am repeating Ministry
20 policy, they have policy now, let's harvest this stand
21 first, first to harvest. But we cannot do everything,
22 we cannot, you know, harvest stands 20 miles away from
23 the mill and then all of a sudden go 200 miles from the
24 mill.

25 But it seems to me, Mr. Martel, go back

1 to your observation, perhaps in area like this these
2 stands should have been burned, prescribed, no, just
3 let it go, let the fire go, but there's always the risk
4 that fire go beyond the perimeter of these area going
5 to burn some good timber with it too. So you have a
6 logistic problem here in the first place; do we, but I
7 think the identification of areas not to allow these
8 conditions repeat itself is very important one.

9 The one situation which I like to go in
10 front of you is a fact that your forest inventory and
11 the whole philosophy on how we are going to treat for
12 boreal forest, what are we going to do with it, is
13 recognized perhaps by company and Ministry last few
14 months or last few years but sometimes we are too late;
15 do we? You know, we have a large area to deal with,
16 with insufficient information, with reluctance to get
17 involved really to scientific forest management, and so
18 this is a result, and eventually the licensee or the
19 Ministry going to be faced with this question, and
20 please be aware of the fact that the question really:
21 What are you going to do with this, what was there we
22 will never get back, it's a productive forest land, so
23 what are we going to do now? .

24 Some people say you are going to start,
25 oh, if we need that wood we are going to bulldoze

1 everything down and start all over again planting
2 trees. But you can do it under certain condition, but
3 you cannot do it under many different conditions where
4 the site does not choose itself for intensive
5 management due to quality, site production, and so on.

6 So I think the first thing what I would
7 do if I was faced with this problem to really identify
8 this and then have a policy where you are going to
9 treat, or how you are going to treat.

10 I haven't got many answers either in this
11 case, what we don't see is a thick mat of ericaceous
12 plants, Labrador T, which is probably knee deep, it's
13 an organic site probably or there is shallow organic
14 element involved. These sites are pretty hard to treat
15 and very expensive too.

16 MS. CRONK: Madam Chair, I did not rise
17 before because I didn't want to interrupt the witness,
18 but could through you perhaps ask Ms. Swenarchuk that
19 where the witness is aware of the location of some of
20 the sites being depicted in these photos, it would be
21 help us all at the back of the room here considerably
22 if he could tell us where it is that he's talking about
23 about.

24 For example, starting with slide No. 20
25 that's up now.

1 MS. SWENARCHUK: Q. Do you know the
2 location within the Lake Nipigon Forest of this site?

3 A. I'm sorry. I'm going to read you
4 exactly where I think they are, no problem. But may I
5 make my comment, please, Madam Chair, that these
6 condition are not unique for Domtar or Abitibi or Great
7 Lakes, these conditions are prevalent throughout the
8 whole boreal forest and I have lived it for 40 years.

9 That's the point I like to make, that if
10 these conditions are being allowed exist on Domtar
11 licence or Kimberly Clark licence or for that matter
12 Spruce Fall, that does not mean they do not occur, it's
13 a dilemma and that's why I'm here today to say again
14 that across board of these happenings are happening in
15 boreal forest, and it's not the fault of Domtar, it's
16 not the fault of Kimberly Clark.

17 Next one, please.

18 MS. CRONK: I am sorry, Madam Chair, I
19 don't mean to interrupt. I can do this in
20 cross-examination, but there are 160 slides and we'll
21 be here until Christmas if I have to. I don't mean
22 that facetiously, we literally will be a very long time
23 if I have to ask on each slide, the photograph, where
24 it is.

25 If the witness can help and if he can't,

1 that's fine, I accept that. If he can help with the
2 location, it is of interest to some of our clients.

3 MADAM CHAIR: Do you know the location of
4 this slide?

5 THE WITNESS: Oh yes, this is Domtar.

6 MS. SWENARCHUK: Q. Do you know the
7 precise--

8 A. What is the number on that slide,
9 please?

10 Q. That's slide No. 20.

11 A. No. 20. Lake Nipigon Forest is right
12 there, you should have it right in front of you.

13 Q. Yes. I think Ms. Cronk's question,
14 Mr. Marek, is: Are you able to specify where precisely
15 in the Lake Nipigon Forest this site is?

16 A. Well, how about 20 miles southwest of
17 Beardmore or southeast of Beardmore, is that okay?

18 MS. CRONK: If that's where it is, that's
19 fine. Thank you.

20 THE WITNESS: Here we are.

21 MS. CRONK: If it's not --

22 THE WITNESS: See, we communicate. Okay,
23 good. Good, no problem.

24 MS. SWENARCHUK: Q. So, Mr. Marek, is
25 this site 20 miles southwest of Beardmore?

1 A. This area actually was -- the picture
2 was taken 1959 - that's a long time ago; isn't it - and
3 was in Vincent Township. See, there is no point to
4 look at it now because it's gone, that was 1959. These
5 stands, I don't know.

6 I know actually the exact area and will
7 tell you right now it's a mixed wood forest of some
8 balsam, some black spruce here, that high, and there is
9 lots of budworm in it, lots of budworm, it's eaten up
10 that you will not recognize it, but I know where it is
11 and I can take Domtar there, if they wish.

12 MS. CRONK: I gather, Madam Chair, it is
13 20 miles southwest of Beardmore approximately?

14 THE WITNESS: Southeast of Beardmore.

15 MADAM CHAIR: Southeast of Beardmore.

16 THE WITNESS: Yeah. I can take you there
17 any time. Okay. What is the next slide, please?

18 MS. SWENARCHUK: Now, we will be turning,
19 Madam Chair, Mr. Martel, to the subject of wild fire in
20 standing timber, having dealt with this range of black
21 spruce sites and Mr. Marek's slides.

22 Q. And do you have some introductory
23 remarks you would like to make on the subject of wild
24 fire, Mr. Marek?

25 A. I think some of the subject are

1 already appear on the scene by--

2 Q. Let me ask you --

3 A. --the Board here.

4 Q. Let me ask you some questions with
5 regard to your observations of wild fire. Have you
6 made it a point to study wild fires during your years
7 in forest management?

8 A. Very much so. Madam Chair, I learn a
9 lot of things from wild fire because from natural
10 curiosity and No. 2 is wild fires in Europe is taboo,
11 you know, we are completely occupied by Smokey the Bear
12 syndrome due to, of course, the population, due to the
13 sizes of the forest estate there and many other.

14 So wild fire is something which I
15 discovered really in North America; in other words,
16 especially in the boreal forest because it's a natural
17 disturbance, immediately drove me to observe it and
18 document it and so on.

19 And I have found that the wild fire, the
20 wild fire is a very important aspect of not only
21 dynamics but also apply for silviculture later on. If
22 wild fire will be undesirable, non grata, let's look
23 what we can learn from it, and I have followed it
24 visiting, examining, treating fires, Gosh! ad nauseum.

25 I have visited hundreds of fires at the

1 beginning, in the middle of the fire, after. Thanks to
2 people like George McAdam, one of the proponent of
3 first man who actually instigated fire protection in
4 Ontario, really fire protection and, therefore, I have
5 visited many of them, I am still visiting them, I am
6 still going back, I am still examining after 20, 30
7 years what's happening and so on.

8 And it's very exciting, believe me or
9 not, I learn a lot. Of course when a fire gets in
10 under certain condition, and that is very important and
11 there are many conditions, it explode in total energy,
12 and here is one fire which - I got to pay attention
13 what location do I talk about - now, you see I have a
14 problem to see where I am, what slide number. Wild
15 fire in Abitibi licence, Auden Management in 1972. I
16 took that picture, I am following that fire now for
17 many years.

18 Q. Mr. Marek, I have one more question
19 before you proceed with this specific slide.

20 A. Yeah.

21 Q. Is it important, in your view, to
22 distinguish between the effects of fires in forest
23 sites as opposed to cut-overs?

24 A. Of course. Once you cut-over you are
25 faced with different condition than if you are faced

1 with a condition after wild fire. There is basic
2 difference which many forester disagree, and I have
3 followed the transcript, I know very well what the
4 issues are, but my own testimony state very clearly
5 that I do not agree that you can compare clearcutting
6 with wild fire.

7 Let's revisit and let's continue later
8 on. I don't want to go in detail. I have a good
9 reason for it from the observation and effects, and
10 effects of the wild fire and the clearcutting, and if
11 it was so simple I would welcome it, but that would
12 take away lots of headaches if I could say it's the
13 same thing, let's go to it, no problem, but it is not,
14 so I will be dealing with it later on.

15 Next one, please.

16 Q. Now, I took you away from your
17 commentary on this slide. Is there anything you wanted
18 to add with regard to this particular slide?

19 A. Well, may I digress for layman who
20 does not understand forest this is a horror story
21 picture, that's a Doom gloom and everything; for me,
22 it's a revitalization of the system as far as I
23 understand this, it's something which we have to look
24 at and learn from and I feel a valuable lesson have to
25 be learned but, as I said, not duplication because we

1 cannot duplicate that energy which we get out of it.

2 Q. Now, could you tell the Board
3 approximately the size of this fire?

4 A. The size was, if I am not mistaken,
5 this was around 20,000 acres or 15,000 acres. I don't
6 know exactly. I know -- I know very well, but I cannot
7 tell you and I can't remember now what size.

8 Q. But it was approximately 15- to
9 20,000 acres?

10 A. Yeah.

11 Q. Fine.

12 A. Next one, please.

13 Well, put yourself in my position. When
14 I fly in this, this is a nice scene of that fire, just
15 glowing, really exploding, it's a cataclysm for people,
16 as I said, who don't understand it it's a frightening
17 thing and perhaps if we would have crashed in that fire
18 I don't know, but the fact is, for silviculturistic,
19 for man who try to understand nature, this is something
20 which is a very deep impression and ramification.

21 Next one, please.

22 Q. This is now slide 23.

23 A. Okay. Now, this is a detailed
24 microcosm of that fire. The time George McAdam was
25 with me there and I have been asked on many occasions:

1 How could you take this picture, did you burn up your
2 butt? And my answer to this is very simple one: No,
3 really, that's why I'm still with you here. So
4 obviously there's one thing about wild fire in standing
5 timber, that it looks worse than it actually is.

6 And I think that by standing there, we
7 were black, we were smelling and we were hot and
8 sweating, but we were detecting of this the fire line
9 was right here, the fire came up, boom!

10 I had my personal experience, I lost two
11 pumps on that one, I had to jump in the river but I
12 survived. Few hours later I was in that fire itself.
13 Next morning that fire was down, there was lots of
14 smoke there, but we were walking through these fires on
15 many instances, no fear at all, no problem at all. You
16 get dirty, yes, but I suppose to seminars and to people
17 I have talked with, everybody say: Well, this is an
18 inferno, this is end of the world, this is a --
19 a catastrophe, you know what I speak, but it isn't, it
20 isn't. It's lots of visual thing, it's hot, but it
21 serves its purpose.

22 Next one, please.

23 Q. This is now slide 24.

24 A. Okay. During and after the
25 different -- these are different aspects of fires.

1 There are crown fires, there are ground fires, there
2 are deep fires burning in the soil, there's many fires
3 and under these conditions each create its own
4 conditions, but one thing which I have been preoccupied
5 for many years, the strategies of wild fire: How does
6 wild fire really work? Get over that simplistic thing,
7 you know, fire is a bad thing or fire is burning the
8 forest and Industry cannot utilize it, Abitibi cannot
9 get the spruce, let's get over it and see how really
10 strategy work; and only way you can do it, go in that
11 fire, go in it and see what is in it, and that's what I
12 have done here.

13 And, again, as with blowdown strategy
14 which I have described to you a few minutes ago, the
15 strategy of wild fire is to create microsite, create
16 environment where the biome or the stand can perpetuate
17 itself and that requires site preparation. How is that
18 site preparation prepared in this case?

19 Fire usually start on the ground, get in
20 the slash or get into timber or the ground, eventually
21 this creates its own wind, gets in the crown and goes,
22 but that's not the end of it. While these things goes
23 over crown, it subsided because crowns burn very
24 quickly, the slow process occur on the stems. And this
25 should typify the fire descending down to the floor.

1 Now, an explosion took place in the crowns and you have
2 seen picture of that - ppffst! - explosion, and slowly
3 material which is burnable start going down until it
4 finds itself right at the floor.

5 May I see the other picture, next
6 picture, please.

7 Q. This is now slide 25.

8 A. Okay. After the fire calms down or
9 is out, you discover that that burning from the top
10 down created something which I think is fascinating,
11 because due to the fuel which is here around the root
12 system fire start burning deeply into the forest floor
13 and by doing so preparing the microsite.

14 Let's say this, if that burning wouldn't
15 occur and create this patch here, and here is a little
16 marker matter of fact - it was John Jeglum who put that
17 marker who find the tree there - new tree is being
18 established few days after fire went through, and you
19 find it very frequently that when there is no
20 possibility of establishment of new growth of spruce
21 around the area burned, this deep burn help and
22 establish microsite or seeding ground for perpetuation
23 of that species.

24 Now, frequently, of course, happen all
25 kinds of seedlings around it, but if there are not, you

1 bet you that if you go to this deep burned microsite
2 and you going to find seeding because there are, No. 1,
3 moisture, there is environment which change, black
4 spruce germinate in, and that way secure survival of
5 the stand of the black spruce specie. This has been
6 very poorly documented.

7 I have many, many discussions with
8 scientists, very known scientists and the strategy from
9 Alaska to Newfoundland are very similar to those what I
10 am showing, so I thought it was worthwhile to point it
11 out to you, that the ecosystem work very safely, maybe
12 slowly, but very safely; maybe wastefully, but safely,
13 so on.

14 Next one, please.

15 Q. Mr. Marek, before you go on to the
16 next, you have referred here to the microsite effects
17 of the fire, and I take it - I just want the Board to
18 be clear - that there's a little tree growing where the
19 white mark is; is that right?

20 A. Right there.

21 Q. All right.

22 A. The seedling's that high.

23 Q. And how long after the fire was this?

24 A. This is only few days after the fire.

25 The germination in the microsites, already seed of

1 course is coming from the crown, and I will be dealing
2 with it later on, and germinants in the microsite
3 created by the fire, niche -- it's a niche which
4 encourages the perpetuation.

5 Q. Now, would you compare the effect of
6 the fire and the creation of that microsite to the
7 effect of clearcutting for microsite creation?

8 A. To answer your -- this going to be
9 subject by itself which I will revive and redo when I
10 am dealing with clearcutting later on.

11 Q. Fine, okay.

12 A. May I point out that this kind of
13 microsite of that nature is not created by
14 clearcutting; in other words, this is again unique
15 event in the natural ecosystem.

16 I would start talking about comparing
17 clearcut with natural disturbance in here we will be
18 getting into in our discussion.

19 Q. Fine.

20 A. So I am going to leave it to later,
21 if I may.

22 Q. Certainly.

23 A. Thank you.

24 Q. Are you ready for the next slide
25 then. Okay, this is now slide 26.

1 A. This slide 26 picture: Effect of
2 fire on forest floor, consumption of feather mosses and
3 impact on sphagnum moss, Allanwater Fire, 1976, Great
4 Lakes Licence.

5 Counsel, this picture is approximately
6 one mile north of CN Allanwater station on the Great
7 Lakes licence. I think the area is Bright Sands
8 working circle, I think.

9 Okay. Let's see what's happened there.
10 Fire went through, microsites were created here all
11 over. The feather mosses, which you please remember a
12 few slides where I said the forest floor is made up of
13 feather mosses of that green beautiful green carpet,
14 remember, well that has disappeared and instead it was
15 burned off.

16 It was burned off just in the areas where
17 feather mosses were firmly established, very thick, but
18 it did a minimum disturbance on other feather -- on
19 other moss which is indicative of these sites, it was
20 sphagnum moss, and here you can see the completely
21 different impact, not only visually but also in a
22 meaning of disturbance itself, fire.

23 This is black, all humus -- nearly all
24 humus has been burned off, competing vegetation in case
25 of Labrador T, ericaceous plants burn off, root system

1 destroyed, and here is this spagnum surviving.

2 Spagnum moss is a moss -- one of the
3 mosses which have very high moisture content, spagnum
4 moss is a moss which is always moist or wet, never
5 dries up; therefore, didn't get burned or if it got
6 burned during the disturbance of wild fire it burned
7 very slightly, it scorches on the top.

8 So you have a different colouring
9 altogether, you have these patches of spagnum moss and
10 here is the feather mosses which have been disturbed.
11 Now, this is important for the follow-up shovel up or
12 treatment.

13 Next one, please.

14 Q. I just have one question before you
15 move on.

16 A. Yeah.

17 Q. Is the amount of standing timber
18 visible after the fire in this picture representative
19 of what is left in the fires you observed?

20 A. Yeah. Now, wild fires do not
21 completely demolish the landscape of all trees. The
22 forest that is being consumed is its needles are
23 usually burned, not all of them, but many of them get
24 scorched and fall down and reaching the site because
25 nutrition, as you know, and nutrients are mainly in the

1 foliage, but chicos - what we call chicos, companies
2 you are aware of that term, chico - is the burn off
3 material that usually stands. Some of the small
4 branches being perhaps disturbed by fire, partly burned
5 but endure, the tree themselves stay as a witness of the
6 fire. Is that satisfactory?

7 Next one, please.

8 Q. This is now slide 27.

9 A. How deep fire can burn and how
10 important it is to realize that removal of many of
11 these mosses, especially feather mosses, is this
12 picture. This is the picture taken on Abitibi Licence,
13 what slide is that, please.

14 MR. FREIDIN: Slide 27.

15 MS. SWENARCHUK: Q. It says Spruce River
16 FMA 1980.

17 A. This is the Hollingshead Fire, I
18 think I pronounce it probably, many sites are so
19 shallow we call it the boulder pavement.

20 Now, there is some strata underneath
21 which of course made mineral soil, but even during this
22 kind of condition the original feather mosses,
23 everything, was covered up and underneath you have just
24 inhospitable, horrible mass of boulder and we call it
25 boulder pavement. Just showing you that if you show

1 this picture to many people - and that's happened to me
2 during my presentations and seminars - they say, again,
3 this is a reverse, what the hell will be grown on these
4 sites, it's so heavily disturbed.

5 Now, you can see this here, boulders,
6 boulders, boulders, how will trees get in. Madam
7 Chair, I have examined this fire and I fly usually in
8 from Pic Lake where you can land in this area. Now,
9 this area now is fully occupied by black spruce and
10 some jack pine, completely restored, carrying new crop
11 of trees, primary species as it was before black
12 spruce.

13 What's happening here is this, that the
14 seed trees or the trees which carry the seeds up in the
15 crown, they drop in, they get germinated in these
16 pockets, these little pockets where there is moisture,
17 accumulation of the debris from the fire itself enrich
18 and here new generation will come in and new stand is
19 established.

20 Next one please.

21 Q. I want to ask the same question on
22 this one, and I will ask you to answer it this time.
23 Would you expect regeneration if this site were logged,
24 such as you have seen on this site, 10 years after this
25 fire? What would you expect the regeneration potential

1 after harvest?

2 A. Right now in that area is occupying
3 full the site.

4 Q. But if it had been harvested, Mr.
5 Marek?

6 A. If it had been harvested you have a
7 different problem, problem of seed source, problem of
8 germination, problem of not burning off the feather
9 mosses; in other words, many factors which completely
10 defer from the situation here.

11 We cannot duplicate nature in this, we
12 cannot, and clearcutting or any harvesting matter of
13 fact we are going to have a hell of a time to do it.

14 Next slide, please.

15 Q. This is now slide 28.

16 A. Yes. This is the same fire,
17 destruction of the advanced growth, balsam fir.
18 Remember, Board, we have talked about the voluntary
19 occupation of site by balsam fir, that if we clearcut
20 it - there was a discussion I had between Mr. Martel
21 and myself - that we will perpetuate this balsam fir
22 from nobody's benefit, here the fire took care of it,
23 this is advanced regeneration where overmature stand
24 was burned and it was completely destroyed.

25 In other words, for nature it's not a

1 problem to get rid of the species which do not belong
2 to site or should be only represented in certain
3 numbers, and by numbers I am talking about stocking
4 percentages and so on. Here the nature just decide in
5 he wisdom, balsam do not belong there, let's start
6 getting rid of it and establish the other primary
7 species, in this case, spruce and jack pine and that
8 occurred.

9 Q. Now, Mr. Marek, in this slide, as in
10 a previous one, we see the amount of standing timber
11 that is left after the fire, and I would like you to
12 explain for the Board what role, in your view, this
13 standing timber plays in the regeneration process after
14 fire?

15 A. In the protection of any, any
16 material which is standing up in a burned-over area or
17 not burned-over it's very important for shelter
18 purposes. We know, for instance about - there are
19 books written on it - I think that's quite well-known,
20 the effect of shelter and, of course, also the
21 disadvantages of shelter.

22 But I will be dealing in this question
23 with the microsites established between these fallen
24 down trees, protection of these trees which do shelter
25 and protect the seedlings to establish there, the young

1 little germinants, which will pop up here, there,
2 everywhere. You will see more slides later on. They
3 serve the purpose.

4 Of course, secondary purpose is that this
5 timber is not just a waste, it's just something you
6 look at and say, there is a purpose behind it too.
7 This timber, as you know, decays; this timber
8 eventually become target of microorganism and all kind
9 of bacterias and so on, breaks down -- this breaks down
10 and eventually will be part of the ecosystem as
11 fertilizer.

12 There's little value in timber itself as
13 far as nutrition is concerned, it's well documented and
14 well described in many scientific journal, the value of
15 standing timber is mainly coming through the protective
16 aspect, preparing moist microsites; in other words,
17 ameliorate the impact of direct sunshine, solar
18 radiation and, of course, deterioration and
19 fertilization of the sites later on.

20 This is not static again, and you will
21 see picture of very similar sites later on. So there
22 are many benefits coming from this to the ecosystem
23 itself; nutrient cycling, additional fertilization,
24 protection and establishment -- favoring establishment
25 of primary species which were there before. All right.

1 Next one, please.

2 One of the things --

3 Q. This is slide 29.

4 A. What was that again?

5 Q. 29. Fresh burned-over site showing
6 fungal activity.

7 A. Right. We are so -- our society is
8 so preoccupied by the effects, the visual effects of
9 the fire that we are forgetting completely about
10 processes which happen inside of these fires and follow
11 up of the fires, that many years back when I was
12 walking some of these burn-over areas and start putting
13 fingers in these burn-over conditions, I was surprised
14 to see - and that was my first reaction after coming
15 from Europe - that, you know, fire is a death, fire is
16 the end of everything, everything is destroyed.

17 All of a sudden few hours after these
18 fires were out, explosion -- dramatic explosion of
19 species of fungi, bacterias, and many others which I
20 don't want to get in Latin here, but there are books
21 written on it too, occur on a burned-over site.

22 So I said myself that time this: If this
23 is a total disaster, if this is a total amelioration of
24 the system, how come these little fellows - and please
25 note these yellow patches are fungi, and there are so

1 many different fungi, there is thousands of them, there
2 is two millions of mycorrhiza by itself - now
3 documented in one cubic centimetres of the soil. How
4 can these fellows survive?

5 Oh, there was a several thousand degrees
6 marching through this system and all of a sudden after
7 this whole excitement is gone, flames and death, these
8 little fellows coming up.

9 Well, I followed it up because I said to
10 myself: What purpose do they serve, what is the
11 reason? And the reason, of course, is now well-known
12 enrich the degraded system after fire because, as you
13 know, energy in a system goes in and out. Up to today
14 modern science they still don't know how 60 per cent of
15 nitrogen is being introduced in the system itself.

16 University of Yale, the top scientist and
17 top technical backup, and I am talking instrument,
18 isolometers and so on, which costs us thousands and
19 thousands and thousands of dollars to analyze it, now
20 coming with a surprise to now and say: We still don't
21 know how that nitrogens get in, coming from the
22 nitrogen which is tied up in bacterias floating
23 through, is that air source which are coming from the
24 ground, is that something. So we still don't know how
25 60 per cent of nitrogen goes into this, but we know how

1 it gets out because we can measure it, we can measure
2 it by products which we are taking out, what the site
3 produce and agriculture is marvelous example, we can
4 monitor it for months and months and finally we can
5 monitor these outputs in forest floor mat, but in
6 forestry we have one big problem; and, that is, when
7 you are going to monitor it, when, and in what
8 condition of the system, at the beginning, in the
9 middle, or the 60-year rotation, or hundred. How are
10 you going to get it?

11 So anyway the puzzle here for me was, how
12 could stuff get into it, how that enrichment of these
13 burn-over happen and happen by these fellows who appear
14 on the scene 70, 60 years, they are there, but they
15 appear on the surface of these lands to start cycling
16 of nutrients and cycling of the whole fluxes into the
17 ecosystem itself.

18 The fluxes has been mentioned before
19 during these hearings and I was very much interested
20 how much was really, what emphasis was put on fluxes;
21 in other words, the atmospheric, geology, the biology,
22 the physical factors and why we know very little as yet
23 about these things. It seems to me that there is a
24 real challenge to know more about these things.

25 These microorganisms, this fungi do

1 enrich and start system on a new way of repelenishing
2 what has been lost, it's an input which is absolutely
3 necessary to maintain the productivity of the site.

4 Next one, please.

5 MS. SWENARCHUK: Madam Chair, is this
6 the time that you would like to break for lunch?

7 MADAM CHAIR: Is this a convenient time,
8 Mr. Marek, to break for lunch?

9 MS. SWENARCHUK: I believe it is because
10 there's still a considerable amount on fire.

11 MADAM CHAIR: She's telling you what to
12 do. All right, why don't we break for lunch now and
13 we'll be back at 1:30.

14 MR. FREIDIN: Don't let her get away with
15 that.

16 ---Luncheon recess taken at 12:05 p.m.

17 ---On resuming at 1:30 p.m.

18 MADAM CHAIR: Good afternoon. Please be
19 seated.

20 Ms. Swenarchuk?

21 MS. SWENARCHUK: Q. We have completed
22 then your commentary on slide No. 29, Mr. Marek, which
23 is the one--

24 A. Yes, you did.

25 Q. --on the screen. Okay. We will move

1 on to the next slide then which would be slide No. 30.

2 A. It represents the microsite. The
3 microsite consists of decomposed, partially decomposed
4 wood. During the processes of stand establishment,
5 stems grow in forest optimization, many components of
6 the stands, and by that I mean many trees become
7 suppressed and eliminate and they fall down, they get
8 buried into the living floor humus, also some of the
9 trees which are being attacked during the dynamic
10 growth by certain pathogens like root rot, and so on,
11 fall down being buried and quite often you hear the
12 statement that this process is not very meaningful; in
13 other words, it's a waste. The term waste always
14 bothers me because while overall it appears to be --
15 the ecosystem working is appearing to be wasteful, they
16 are not, they fulfill their obligation in the life of
17 this -- of this stand's growth, downfall, burning off
18 and, of course, play some part also in the rejuvenation
19 of the stand by means of preparation of microsite.

20 Now, here is a typical cut-over area
21 where the burning itself removed a major part of the
22 humus component which may have a different thickness
23 but also exposed the material which was deposited
24 during the stand's life, during the stand's life. That
25 means that the buried trees or the so-called waste is

1 being exposed, and here is a picture of a tree which
2 was buried for many years in the humus layer, become
3 exposed by the burning off of the humus layer and the
4 same time preparing beautiful microsite..

5 Now, you see the continuation of it, you
6 can see kind of trough here which some of that wood was
7 burned, some of it by burning exposed the microsite and
8 some of it, of course, become only partial burned or
9 left. These remnants of the tree and, of course, the
10 preparation of microsite does not only prepare the
11 microsite itself it also fertilizes to some degree,
12 release the nutrients, and it will prepare microsite
13 which is rich of these nutrients and also is usually
14 moist because decaying wood usually has a quality of
15 maintaining moisture or receiving moisture, maintaining
16 it, thus preparing the microsite suitable for the
17 regeneration of the stand.

18 Q. Mr. Marek, when you introduced this
19 slide you said that it was a cut-over burnt. Was this
20 cut-over or was this an undisturbed stand?

21 A. This was natural stand which was
22 burned off by wild fire. Where the humus was removed
23 by severe burning, buried trees was exposed, but by the
24 activities of fire prepared technical conditions
25 suitable to the regeneration of the stand.

1 Next picture, please.

2 Q. This is slide 31.

3 A. Yes. This slide I suppose is typical
4 of burn-over area and I call it mosaic of wild fire and
5 tree environs, Abitibi Licence, Auden Forest 1972.

6 When you talk about wild fire many, many
7 people understand that the burning of timber is kind of
8 simple process which burn off the timber, create this
9 kind of doom and gloom situation but when you, of
10 course, study from the air you can see right away
11 different intensity of burning, different dynamics
12 connected to the fire itself.

13 Here in the forefront you can see very
14 clearly the fire must have been very hot, very severe
15 because it's blackenedconditioned condition is sign of
16 intensive burning, high temperature, and perhaps more
17 damage done here than the area you can see here where
18 the fire just flashed quickly through, scorched the the
19 foliage, needles, which eventually drop off, go to the
20 ground, cover the surface, thus improving the fertility
21 of the site itself.

22 We must not forget that these needles
23 contains large amount of nutrients, matter of fact most
24 of the nutrient in the tree is in the foliage in small
25 branches, and once they are deposited on the burn-over

1 site, improve the productivity of the site itself.
2 It's a natural fertilizing process.

3 And I know lots of people are going to
4 say this will not happen in cut-over. Yes, this will
5 not happen on cut-over because you haven't got this
6 dropping of leaves, because we -- usually cut-overs we
7 remove the whole foliage by full-tree logging. So you
8 can see the dynamic.

9 The other, of course, interesting picture
10 in this shot is the presence of green timber. Quite
11 frequently again it's pointed out that fire destroy all
12 timber and it's a large area and so on. This may be
13 the case to some degree. Any fire I have seen so far -
14 and I explained to you, Madam Chair, that I have seen
15 many of it and been part of it many times - leaves
16 these green patches of timber standing here, there,
17 depending on the activities of fire itself, but never -
18 at least I have never seen it - substantial, large,
19 very ugly complete burnover; in other words, there is
20 no green visible in the burn-over area. And here you
21 can see very well, very severe burning, kind of medium
22 flash burning through the foliage, and here are green
23 timber. It's a preventive mechanism of the burn.

24 So natural disturbances, they always
25 leave something behind in order to repopulate,

1 rejuvenate the total system into production again. And
2 I think it's important to realize that these so-called
3 patches or bypassed area by fire serve very important
4 role in the sustainance of the ecosystem itself.

5 I have additional pictures of it and
6 maybe we can include with this other -- oh, you have a
7 question, counsel?

8 Q. I will just ask you to expand from
9 the point you just made, what is the role that the
10 standing patches of timber play then in sustaining the
11 ecosystem after fire?

12 A. Well, it's a role which keep the
13 total ecosystem or biome here, because it's a black
14 spruce area, because it's a black spruce ecosystem, so
15 if that all was probably burned the same as here, I
16 don't think -- the sustainance and the perpetuation of
17 the ecosystem itself would be difficult one because you
18 don't -- in this case you preserve very little of the
19 very indigenous component which make the total
20 ecosystem.

21 So the disturbance indeed occur in some
22 places very serious, like for instance here, is less
23 serious here, is no serious at all because this green
24 timber are going to sustain, repopulate, and I am
25 talking repopulated not only as far as trees are

1 concerned but also the other component of the ecosystem
2 by itself.

3 So when you are talking about
4 multi-purpose forestry in term of natural ecosystem,
5 you are talking also the mechanism, the protective
6 mechanism in the system itself, by natural ecosystem,
7 where these strategies are to leave some of these
8 condition in order to replenish, rejuvenate these total
9 systems.

10 And there are many parts to it, as you
11 know, I don't want to go in detail, I suppose from fish
12 and wildlife and I suppose to mention the floristic
13 component of this ecosystem, there is always something
14 left behind so the repopulation can take place. Is
15 that satisfactory?

16 Q. Is that mosaic with the varying
17 intensities that you've described representative, in
18 your view, of the type of mosaic that you've seen after
19 most of the fires that you've observed?

20 A. I think so. You cannot pinpoint, you
21 know, by percentage. Again here we are failing, I
22 suppose, to study these areas from ecosystem point of
23 view, holistic, to document, okay, such and such a fire
24 create such and such percentage say, or so many
25 percentage of, 70 percentage of that.

1 In order to get the analytical
2 documentation which is frequently asked prove me that,
3 prove me that there is enough of this in order to
4 repopulate that and from here translate to this. In
5 our modeling which has been done we are really failing
6 bad on some of the basic factors where you can
7 analytically, imperically say: Okay, by leaving so
8 much standing we going to get such and such results
9 here for the entire forest, that's extremely complex,
10 but is probably required if we want to talk about
11 multi-purpose forestry, because we need still deciding
12 what multi-purpose forestry really really mean, in a
13 sense what the nature does and what the man does.

14 If you reverse these things and compare
15 this with, say, creating a conduit by partial
16 clearcutting, by modified cutting and results, so
17 immediately you're going to run into degrees of input
18 and output, not in the official energy during the burn,
19 but the results after, how much energy can be
20 transferred from the different compartments, what are
21 the fluxes in the ecosystem say from here to there, in
22 order to sustain that cyclical system which originally
23 was there, that's your ecosystem. So it's pretty
24 difficult, we haven't got there information as yet.

25 Q. If you're ready to proceed, I have no

1 further questions on this slide.

2 A. So next slide is please?

3 Q. This will be slide 32.

4 A. Yeah. This is a picture everybody
5 likes because it's so much colour and indeed show us
6 again, this is a 1980 fire and shows islands of unburnt
7 timber, islands or strips of timber which was partially
8 burned or just scorched and, of course, the severe burn
9 and the green patches again here. It's a mosaic which
10 nature play with and result in conditions - this is I
11 think very important of maintenance of the ecosystem
12 itself - nature do not take a big hazard, there is
13 always this kind of thing.

14 It doesn't work hundred per cent, but it
15 there is always presence of these different conditions
16 for very simple reason; in order to maintain
17 productivity of the system, maintain the species
18 represented by that system and, hence, this kind of
19 distribution.

20 I could show you hundreds of slides which
21 I have taken under very similar conditions way back to
22 50s and it is always the same thing that you are
23 dealing with certain percentages, how much of this, how
24 much of this; but overall the purpose is to repopulate,
25 rejuvenate the system itself by leaving these patches

1 in its diversity. Okay.

2 Q. Yes. This is now slide 33.

3 A. Yeah. This is -- again I go back to
4 the fire up at Allanwater which I had to spend quite a
5 bit of time there and I have several plots and several
6 areas which I had studied, frequently go back to see
7 the dynamics. It just compliment some of the slides
8 that I have shown you previously, the mosaic, the
9 different burning condition and protective mechanism,
10 also the protective patches here green, green here,
11 everywhere, which is a part of natural disturbance and
12 very important part for the maintenance and recovery of
13 this system which was burned by natural disturbance.

14 To compare this to clearcutting which is
15 frequently done, and I will deal with it later on when
16 I show you slides on this. So here I would like to
17 say, sure, it wouldn't be too problematic to establish,
18 say, percentage of burn or unburned area or percentage
19 how it was burned, what impact that has, and this is
20 something we have to deal or model pretty soon in order
21 to justify perhaps the kind of multi-purpose forest we
22 are dreaming of.

23 Thank you.

24 Q. Do you recall how long after the fire
25 that slide was taken?

1 A. This was taken I think few months
2 after the fire was out. I can't recall exactly, but I
3 think it was just a matter of a few weeks after the
4 fire. I visited several times coming in the years
5 after, but I think this is one of the slides I took two
6 months after the fire was out.

7 Q. Now, there has been suggestion in
8 this hearing that evidence will be presented to the
9 effect that the patchiness of fires affects
10 approximately five per cent of the land base. Is that
11 a figure that you would agree with from your
12 observation of fires?

13 A. Will you come again on this one.

14 Q. It's difficult to be clear because
15 I'm not sure what the evidence is. Let me ask it this
16 way: In your experience is only about five per cent of
17 the land base still green after a fire?

18 A. Oh, simplification obviously. Now, I
19 already mentioned that we should be dealing with this
20 percentage and we should know and identify very clearly
21 what it was here, what effect it has and so on. Now,
22 I hate like heck - pardon me - to document what kind of
23 percentage you need in order to preserve the ecosystem
24 or duplicate nature or something like that.

25 It varies from a fire to fire, because it

1 depend very much on a few conditions; it depends what
2 kind of age-class you are dealing with, it depends what
3 kind of -- matter of fact in weather condition, what
4 kind of fuel strategies you have and this whole picture
5 may have changed completely if you had a different
6 condition; in other words, this is not prescribed,
7 predeterministic percentages so it's difficult.

8 And this is why I'm saying the forestry
9 is -- something about forestry is for sure that, you
10 know, there's nothing static, everything is changing
11 all the time and, in this case of the fire like this,
12 you have a certain percentage, but overall one can
13 simplify and state it will take care of these sites
14 very well. So that is all I can say.

15 In other words, the security of the
16 system here, the security of forest, the perpetuation
17 of the forest as it was, what was before, is assured
18 here if we don't touch, okay.

19 Q. Okay, go ahead. This is now slide
20 34.

21 A. Yeah. Lots of people talk about
22 where the seed come from and in this black spruce
23 ecosystem obviously the seed comes from these tops, as
24 you probably know and read, the black spruce has cones
25 which are semi-serotinous; in other words, they do not

1 open at one shot, they open gradually, sometimes they
2 open up and close up again, something which in jack
3 pine for instance the cones usually stay open; in black
4 spruce - and that's unique - that's again, in white
5 spruce for instance cones open up, down they go from
6 the trees, and usually wind up on the forest floor or
7 spread around by wind, but in this case the seeds stay
8 there for long, long period of time, that's a marvelous
9 thing. So suitable for natural regeneration that you
10 have a steady supply of seed.

11 We did lots of studies, a colleague of
12 mine and we started way back - Abitibi people are
13 probably very much aware of these studies - which
14 documented by using seed troughs and other mechanism to
15 document the seed dispersal. I had done some trapping
16 of seed, I suppose some of my colleagues did the same,
17 but in general term I can say that these top of the
18 trees have a large number of cones, supplies for longer
19 period of time. It's not a one-shot treatment; in
20 other words, bang! there goes fire, cones open up and
21 down they go seed, no. These seeds stay there
22 sometimes long period of time. Again, for what reason;
23 strategy of forest or strategy of nature to reseed the
24 areas or the microsite on the forest floor.

25 We quite -- it is frequently said in

1 connection to the black spruce seeding that you have to
2 wait til seed source will be, or seed will be available
3 because they say such a thing as seed years or
4 maximization of seed in element of time. I personally
5 from my experience, which I have done, which I have
6 tested in an area I worked for many years, that black
7 spruce side is dispersed any time of the year, any time
8 of the day.

9 That is seed here which I think is
10 perhaps to be considered, but it's not a big problem
11 because of, if you have a bumper seed crop, these cones
12 up there stay there for long period of time, of course,
13 in the undisturbed condition by nature or by cutting,
14 so they're available and they distribute that seed here
15 and there as needed.

16 And I think that it's not a justification
17 for the forester to say: We'll have -- we do no strip
18 cutting or we don't do any modified cutting because you
19 have to wait 150 years or 140 years for seed source,
20 nonsense. In some area it may be very important factor
21 in order to implement modified cutting.

22 Next slide, please.

23 Q. This is now slide 35.

24 A. Now, well here again I like to show
25 the effect of severe burning on the forest floor. My

1 hand is pointing out the level of these feather mosses
2 growing back, what you have seen in the previous
3 pictures, the lush green carpet of the forest floor of
4 more humus and I am pointing out how much was -- how
5 much reduction was caused by the fire. In some cases
6 it's complete reduction; in some cases, in the hot
7 fires, and please go back three or four pages where I
8 have shown that dark area of burning, there the forest
9 floor is completely burned off right down to each layer
10 of mineral soil, and so this is quite a reduction.
11 This must have been, considering this is the forest
12 floor now, so the effect is quite severe. Please.

13 Q. Mr. Marek?

14 A. Yes.

15 Q. Have you experienced standing under a
16 tree like that, or standing on the forest floor
17 immediately after fire?

18 A. If I notice the changes?

19 Q. Have you experienced standing on the
20 forest floor after the fire, just being there?

21 A. Yes. Yes, yes, very much so. This
22 is a very important part of my silvicultural work, that
23 I was there when it is changing heavily; in other
24 words, when seeding occurs, the micro-sites study and
25 the survival and reforestation from the seed source,

1 yes.

2 Q. And do you experience any kind of
3 precipitation or debris when you are standing on the
4 floor after the fire?

5 A. Well, of course, if you go
6 immediately after say fire subsided and you are able to
7 safely walk through the area, you will notice
8 immediately one thing, you will notice the changes in
9 the floor.

10 I have pointed out to you the impact or
11 the presence of the biological component and that was,
12 in this case, the mycorrhiza, of course, and the fungi
13 which appear on the surface, but also the establishment
14 from the seed source of - and this is unforgettable
15 experience - when you go after fire and the seed is
16 coming down on you and the cones are open and all of a
17 sudden wind and the atmospheric condition allow to get
18 that seed out of the crowns and you are standing just
19 like in a snow storm.

20 On many, many occasion I have sit there
21 and I said: God, what's coming down, it's snowing.
22 No, it was the seed coming from the stocks and just
23 falling gently or being manipulated other the total
24 area just like a snow drifting over the area. And, of
25 course -- and that is eventually the product, the seed

1 germinate and establish a stand.

2 Is that what you wanted?

3 Q. If that's what happened. Now, back
4 to this slide, you were indicating the depth of the
5 forest floor burning. We also see green seedlings.

6 A. Yeah. Next slide is probably going
7 to be more.

8 Q. Okay. Do you recall how soon after
9 the fire that slide was taken with the seedlings
10 evident?

11 A. This is two weeks after fire.

12 Q. Thank you.

13 A. The germination occur very quickly
14 and the growth is very dramatic. Here the slides
15 epitomize --

16 Q. This is slide 36.

17 A. Yeah.

18 Q. Perhaps you could point out for the
19 Board, I don't know if it's clear to them, what's on
20 the slide.

21 A. You can see those green spots here,
22 Madam Chair, Mr. Martel, those are seedlings. Now, it
23 has been stated before, I think that my learned friend,
24 who was the -- anyway, it was stated that the
25 regeneration occur by establishing thousands of these

1 little seedlings which are found here and I have
2 measured the numbers per acre and per hectare and per
3 plot and I have up to over 200,000 seedlings popping up
4 immediately after fire.

5 Now again, this is something perhaps
6 unique, 200,000; you may have a hundred thousand, you
7 may have 500,000 and so on, but in general the
8 germination and the establishment of the new forest
9 under natural condition is very dramatic by sheer
10 numbers, the thousands of these little fellows get
11 established here, and here again perhaps the question
12 pops up quite frankly: Well, what a waste, what a
13 waste, what a waste, look at these thousands of things,
14 what the heck we going to do. There is too many of
15 them, too many of them. Of course, if we look at the
16 natural forest comparing to the artificial forest, yes,
17 to some degree it's too many, I agree with that.

18 But one must not forget one thing, that
19 nature's mind has a different objective and perhaps
20 sometimes different results of this objective. Here we
21 are talking about maintenance of the ecosystem,
22 maintenance of; we are not talking perhaps of
23 proposition where you say: Well, I can have so many
24 trees and that's going to bring so many dollars and I
25 have spent so many dollars. It's kind of economics of

1 the thing.

2 Here the nature does it best to assure
3 sufficient, perhaps in our eyes wasteful, but when you
4 looking from the nature point, this is not wasteful at
5 all, and I tell you why in a few moments.

6 I am convinced that nature's design here
7 to produce so many offspring is that nature know that
8 many of them will die, maybe homosapians should take
9 some hint from that. The other thing is that in order
10 to maintain site productivity you have to have,
11 especially in the black spruce and conifer biome in the
12 boreal forest, you have to have substantial number of
13 trees in order to have closure of the canopy as soon as
14 possible. Why? The question is: Why do you have to
15 have very early crown closure in black spruce?

16 I think it was Miller at Yale University
17 who just recently came up with a very intersting
18 comparison of some of the statement done by green thumb
19 forester from 1815 which state very clearly that one of
20 the secret of your recovery is to regulate not only
21 moisture, not only temperature by the establishment,
22 but also having the numbers; in other words, in order
23 to achieve the proper balances between, No. 1, seed
24 carbon and nitrogen, in order to achieve proper
25 relationship between temperature and moisture, you got

1 to have a condition which is created by very crown
2 closure.

3 Now, this crown closure here appear to be
4 immediate, this stand, and I will show the next slide,
5 would you please.

6 Q. One second before you do that.

7 A. Okay.

8 Q. I just want to record, the slide
9 description indicates that these germinants were three
10 weeks after the wild fire; is that correct?

11 A. That's right.

12 Q. Okay. Next slide.

13 A. The preparation of microsite by wild
14 fire does not occur and does result in a kind of flat
15 bowling alley terrain, it may differ. In many
16 instances microsite achieved by the burning in pockets.
17 Why is this pocket created, because fire burned that
18 way, of course, and black spruce - here's a seedling
19 one-year-old which is established here. This is a
20 hole, very deep hole and because moisture and
21 temperature condition are suitable for that seed to
22 germinate, establish a new seedling, that's why they
23 are there.

24 Modern site preparation is very much
25 concerned about this; that's why we have so many

1 different approaches to site preparation, in order to
2 create microsite which are suitable. Not every
3 microsite is suitable for proper regeneration of black
4 spruce, matter of fact it's well known it's most
5 difficult, I think, to prepare proper microsite for
6 black spruce; hence, our research into black spruce in
7 general, we dealt with it for many years.

8 And it seems to me that ideal condition
9 can be achieved by manipulating the site to create
10 these kind of conditions, but fire does it
11 automatically, it creates these microsites, seedbeds,
12 so that little fellow here under this plantation can
13 germinate and survive.

14 So then when we are talking about the
15 condition of the seedbeds or condition of the sites
16 after the burn, they may vary, they may vary from Clay
17 Belt to Kenora, western region, depend on the site,
18 depend on the many factors, but they are created for
19 sure. They are also created because the number of
20 seeds is being spread so indiscriminately to hit the
21 proper spot and get the black spruce started to
22 re-establish again.

23 Next one, please.

24 Q. This is now slide 38.

25 A. You can see the residual root system

1 of black spruce which was buried.

2 Q. Mr. Marek, if you could stand back
3 perhaps the Board could --

4 A. Oh, I'm so sorry. Please just tell
5 me to buss off.

6 That was completely burned off, the roots
7 were exposed, microsite established here on a site
8 never seen before; in other words, it was there
9 before burning and this fellow, black spruce, were
10 established without any problem.

11 Also notice the rapid regeneration after
12 one year after burning. This is one-year-old germinant
13 completely surrounded already by mosses, in case it's
14 feather mosses, some of them are pleurozium mosses,
15 some of them are sphagnum mosses, I could describe, but
16 so on and so on, it's fairly complicated.

17 But look at the rapidity, look at the
18 speed which the site is immediately reactive, produced
19 the floristic composition which supports again the
20 establishment and growth of the black spruce.

21 You don't get these conditions very.
22 quickly in cut-over when you have desecration and
23 impact of some of the other environmental fluxes, no,
24 it's a different story.

25 Please.

1 Q. This is slide 39.

2 A. Okay. We talk always black spruce.

3 In many instances when you go back after fire, two,
4 three years later you are going to find the jungle of
5 black spruce germinants. This is a three-year old
6 germinant after fire.

7 You can see the total mosaic of
8 the site, floristically speaking, and tremendous amount
9 of black spruce seedlings will coming up very near to
10 the crown closure, I bet you any money -- matter of
11 fact, I were there when this crown closure occurred, so
12 that's happening five years, you have a crown closure,
13 everything closes and, of course, we are screaming: Too
14 many, too many, too many. Well...

15 Q. Now, Mr. Marek, is it correct that
16 this regeneration is on part of the site that the Board
17 has already seen in slide 31, the slide of the mosaic
18 of the fire.

19 A. This is Auden fire which I have
20 produced at slide No...

21 Q. 31.

22 A. 31, thank you. So, I go back to
23 these sites and follow it regularly, and I like to see
24 how it works, and this is a shot that was taken three
25 years after fire. Tremendous amount of seedlings,

1 growing well, and this is fire produced identical stand
2 to what was there before.

3 Next one, please.

4 Q. This is now slide No. 40.

5 A. Yeah, this is a different fire, much
6 older fire which I took picture sometimes in 50s, but
7 again it shows you the kind of chaotic arrangement
8 which nature creates after fire. Seedlings become
9 established, seedling grows, lots of them, here is
10 still the residual timber which seed again, or the
11 cones from these will seed again and, of course, the
12 breakup of the mature, not harvested stand. So you can
13 see the breakup, very chaotic thing, agree, but very
14 efficient. The black spruce is back and very identical
15 stands are created again. That's why the ecosystem
16 prove itself guaranteed.

17 Q. And what exactly do you mean by that,
18 Mr. Marek?

19 A. Well, by that I mean that this
20 regeneration establish here is very stable, by
21 stability I mean, of course, many things. By stability
22 I mean, describe it as ability of the stand to resist
23 natural perturbances or perturbances coming in,
24 stability is assured by sheer number of the seedlings.
25 There will be some mortality here, but eventually we

1 are going to wind up with very similar stand as before.
2 There's a controlling effect against diseases,
3 pathogens and, of course, spruce budworm too because
4 fire is a sanitary kind of -- lots of things get
5 destroyed but lots of things is recreated.

6 So what we must consider here is kind f
7 static is that stands which were here before will be
8 created again, recreated again, static, very assuring
9 static -- stable.

10 Change is inevitable, the dynamics are
11 obvious, that's going to grow, is going to produce the
12 same stand. So the stability in this instance is the
13 co-existent and co-operation between different elements
14 and practices in ecosystem of the stand.

15 MR. MARTEL: Can we back up to the
16 previous picture. In an area like that, would you
17 spray to release any of that, that's the first part,
18 and the second part, you talked about a five-year
19 canopy closure; would that then reduce the amount of,
20 if you let the natural, the competition that was going
21 to develop?

22 THE WITNESS: Well, first of all, in a
23 natural created stands you have very little
24 competition, I'm speaking generally now. Now, in
25 cases - again, it depend on site conditions, it depend

1 on many, many factors -- but speaking generally now,
2 natural stand with that kind of density, will not be
3 sprayed because the sheer number of spruce outcompete
4 the occupation.

5 The site here is being taken over by
6 spruce, there will be some competition by grasses,
7 there will be some competition perhaps between other
8 ericaceous plants even, but the sheer number here
9 guarantees me that it's going to be minor competition
10 and chemical spray will not be necessary because sheer
11 number will occupy this site. That's primary species.

12 Now, if we had one spruce here, if we had
13 one spruce over there and eliminate all these dense
14 spruce, the picture would turn around. Then indeed you
15 give a chance to species like trembling aspen, birch
16 and many other grasses that can come to move in, being
17 opportunistic, to take advantage of the site condition.

18 You have an open, you have a pioneer
19 species, that's why we call them pioneer, because they
20 are the first one to occupy that site, and it is high
21 density of the natural prevent this to certain degree.

22 Now, again, because we are lacking basic
23 studies in total ecosystem studies we cannot say for
24 sure, yes, you need two, four, 10, 15, 20,000 trees to
25 accomplish according to the site condition and burning

1 condition, but we are wrestling with problem where we
2 know when we establish only - I think I showed, this
3 was not burned, this was planting area - we establish
4 one spruce here and say six feet or 10 feet or 20 feet
5 or 200 stems per hectare or so on, this occurrence will
6 occur. Indeed it will occur because we are not
7 recreating fire, we are putting completely different
8 condition on these sites and this competition, of
9 course, may be a severe factor and also capture -- I
10 call it capture of the site, and I suppose many people
11 heard that.

12 They say tremendous competition between
13 vegetation after fire disturbance, after man-made
14 disturbance; regardless there is a certian, but here
15 the competition is mainly between, if spruce is the
16 primary species, that competition is not here between
17 spruces and poplar or birch or some other ledum
18 such as Laboratory T.

19 Q. The term was ledum.

20 A. L-e-d-u-m.

21 Q. Also known as Labrador T.

22 A. So the problem here is that we have
23 too many spruce, there's no problem of competition
24 - between spruce and poplar. If we are going to put one
25 tree here and one tree there and eliminate this, then

1 we have competition.

2 A crown closure play very important part
3 in it because I have been in management of plantation
4 for what, over 35 years, and I have European experience
5 with plantation and one of the things is the dynamics
6 of any disturbance, and by that I am talking about
7 natural disturbance versus the man-made disturbance is
8 very bad in this case, it's tremendous and totally we
9 answer this by - that's pure economics - by herbicide
10 spraying, by using chemical, by manipulating spacing,
11 for instance, but we know very well that the process is
12 so dynamic that one-shot treatment like one spraying
13 probably will not give us that which we want.

14 This is well known. I think the European
15 literature is full of it. You have to intervene many,
16 many times to keep the check and balances in the
17 ecosystem dynamics.

18 MS. SWENARCHUK: Madam Chair, Mr. Martel,
19 that brings to a close Mr. Marek's slides specifically
20 related to fire, and the next subject area that his
21 slides will address are the effects of large area
22 clearcut logging.

23 THE WITNESS: Now, here comes the
24 interesting part, I think.

25 MS. SWENARCHUK: Q. Let's begin then

1 with slide No. 41, please.

2 A. Well, that is not the slide I want.

3 Q. That's slide No. 40.

4 A. And that's Dick Fry standing on his
5 head.

6 MS. SWENARCHUK: My apologies, Madam
7 Chair.

8 THE WITNESS: Could you get that slide
9 back.

10 MS. SWENARCHUK: It will just take a
11 second to get it back.

12 THE WITNESS: No, that is not it.

13 MR. HUFF: Mr. Fry is now standing
14 upright.

15 THE WITNESS: That's right, exposing his
16 belly button.

17 Now, what you have seen so far was
18 natural disturbance, dynamic of wild fires, the
19 successes of this system in order to perpetuate the
20 primary species or the biomes. Now, let's have a look
21 at what we are doing by removing the timber, by
22 cutting.

23 This slide was taken when -- I think it
24 was a student, that must have been 1962, and the reason
25 I brought it in to see the difference between logging

1 method utilization and the whole approach to harvesting
2 which took place in so many years. Here Dick is
3 standing up to knees in the slash. In the techniques
4 or logging techniques or systems which were used in 50s
5 and 60s, and I was part of it by the way, I was working
6 for corporation -- for private corporation, was to
7 utilize the plain boles of the trees and leave the
8 slash on the ground. And Dick is standing up to his
9 knees in the slash on the ground. Was that a good
10 practice, was that a bad practice?

11 Well, when we are going to talk about
12 nutrition, when we talk about site deterioration and
13 problem of harvesting, leaving slash or not leaving
14 slash, I will go to it more in detail, but here I want
15 to show the striking difference of our practices in the
16 past up to present.

17 So lots of slash here, say it's good,
18 it's all kind of nutrients in the foliage and small
19 branches, nutrients probably will come, depending on
20 the rate of product decomposition, depend on many other
21 factors; however, what we got most majority will be
22 left behind because bole-only trees; in other words,
23 the log, have a very big nutrition, it's seldom lost.
24 So here the vitamins, here are the nutrients. So we
25 kept it there. I didn't like it, but there it is.

1 Next one, please.

2 Q. Mr. Marek --

3 MS.. CRONK: Sorry, Madam Chair. Before
4 we leave that slide, I ask the witness through you, Ms.
5 Swenarchuk, to repeat where that was taken.

6 THE WITNESS: Where that is.

7 MS. SWENARCHUK: Q. Mr. Marek, you have
8 indicated in the slide list that this was taken on the
9 Lake Nipigon Forest.

10 A. Right, 1962. But there was no such a
11 thing as Lake Nipigon Forest, that was the St. Lawrence
12 licence that time. So I don't have a problem with you
13 here now calling it new arrangement licensing or the
14 old --

15 Q. Okay. Now, I think -- Mr. Marek, I
16 think what could be helpful here is, can you specify
17 using today's terminology, I think Ms. Cronk would like
18 to know if you can specify exactly where on the Lake
19 Nipigon Forest that cut-over piece is?

20 A. Okay. Camp 94 operation.

21 Q. Camp 94 operation?

22 A. Camp 94 operation, 1962.

23 MS. CRONK: Excuse me, Madam Chair, and I
24 rise because I think the difficulty is occurring
25 because the location of that slide is not indicated on

1 the slide list that I have, so it must be that I'm
2 working perhaps from the wrong list of description of
3 sides.

4 At the break I will speak with Ms.
5 Swenarchuk. When I have risen before I did not have,
6 and I do not for this one, have an indication where the
7 slide was taken. So I will sort that out with her at
8 the break.

9 MS. SWENARCHUK: Could I just ask, does
10 your list indicate that it's from the Lake Nipigon
11 Forest?

12 MS. CRONK: No, it does not. That's what
13 I just said, that's my problem, I am grateful for the
14 added information.

15 MADAM CHAIR: Ms. Swenarchuk, when we
16 made this documentation an exhibit this morning you
17 said it was a revised slide list.

18 MS. SWENARCHUK: Yes, and it was sent out
19 on October 25th, and I understand now Ms. Cronk's
20 difficulty.

21 MADAM CHAIR: Okay.

22 MS. SWENARCHUK: And let me say as well
23 that we are certainly willing to provide any further
24 details that Mr. Marek has, if they are of assistance
25 to the Industry.

1 THE WITNESS: Yeah.

2 MS. SWENARCHUK: Might I just ask you,
3 Madam Chair, at what time you plan to take the break
4 this afternoon?

5 MADAM CHAIR: We usually take our break
6 at about 2:30, twenty to three.

7 MS. SWENARCHUK: Mm-hmm, fine.

8 THE WITNESS: Okay. In general this
9 condition is not unique to St. Lawrence or Abitibi or
10 Great Lakes, these condition, these logging techniques
11 used in 50s and 60s up to middle 70s for at least for
12 that particular area, where black spruce forest was
13 cut, this is the condition. That's actually have to do
14 with Domtar. That's my opinion.

15 Next one, please.

16 MS. SWENARCHUK: Q. This is now slide
17 42.

18 A. Yes, right. Black spruce upland -
19 shallow sites cut-over, Long Lac Forest, 1990.

20 Q. Can you be more specific as to where
21 in the Long Lac Forest this shot is from?

22 A. Madam Chair, I took these two
23 concrete examples just to compare how the logging
24 practice has changed in this area, if this area was cut
25 in 1960 or '50 it would be probably same amount of

1 slash, up to here, and I can stand there with slash up
2 to my knees.

3 Here is slash completely removed, slash
4 removed to the centre of road location where the trees
5 are being delimbed. Slash from the boles or whatever,
6 and the slash from the delimbing, so you can see the
7 complete absence of slash and debris. There is other
8 debris, of course, there but slash itself is obviously
9 missing, so that is how we change.

10 Now, the question of course I can be
11 asked very quickly now: Beside the visual difference
12 or aesthetic difference because of that to opposing
13 presence of slash, and so is that better over there, or
14 is that better over here?

15 And that's going to be, of course, matter
16 of discussion when we are going to deal with -- when we
17 continue our discussion on what slash -- or what
18 full-tree actually only does to the site. So I would
19 like to skip it for now and leave it for later.

20 Q. Mr. Marek, I just want to ask you
21 some questions about this site.

22 A. Okay.

23 Q. Is this what you would describe as a
24 shallow site?

25 A. Yes, that's very shallow site. You

1 can see exposed bedrock all over and this is shallow
2 bedrock, but you may find lots of boulders and lots of
3 stones in fluvial or in sites which are deep, but here
4 it's a very shallow site, flat bedrock with minimum
5 amount of soil of maybe in a pocket here, yes, it's
6 very shallow site.

7 Q. And the trees that are left on the
8 site--

9 A. These things?

10 Q. Yes.

11 A. Yeah, here.

12 Q. Yes. What species are they?

13 A. They are spruce.

14 Q. And do you know why they are dead?

15 A. Well, probably they were dead even
16 during the logging. I think I would say that one year
17 after exposure, of course, they died because these
18 trees were probably suppressed by shear size, visual
19 sizes, so there is probably quick mortality of these
20 residual small stand or dba stands, so they die
21 immediately after or shortly after.

22 Q. Now --

23 A. Obviously, they are not seedlings.
24 Somebody come this is modified cut, the seedlings are
25 so big. So please be clear on that.

1 Q. Okay. Now, I know that it's going to
2 be dealt with in other slides as well, but I want to
3 introduce the subject here. With regard to
4 regeneration potential, is the condition of this site a
5 positive condition, in your view?

6 A. No, it isn't, because No. 1 shear
7 exposure of the bedrock you can see is very visible.
8 Well you cannot plant trees on a bedrock or you cannot
9 even natural regenerate trees on a bedrock. Under
10 certain conditions nature can do it very well, if
11 mosses or that moss cover, organic matter is overlying
12 the bedrock. Once you remove it by desecration, by
13 erosion, by taking it off, of course, then you have the
14 same condition, no you cannot, so that's No. 1.

15 No. 2 is that as you see the slides
16 before where my friend Dick Fry was standing up to his
17 knees in the slash, this slash eventually decomposes
18 and becomes part of the humus layer. It takes long
19 time for the formation to do that, but eventually that
20 material that you have seen where the cut-over site is
21 completely covered by slash, that has a certain input
22 in the makeup of the new forest floor and obviously
23 produced over here, and I will not now say that this
24 site is going to be looking like that year after, two
25 years after, ten years after and so on.

1 This site will revegetate. These bedrock
2 patches of course will be there for many years to come.
3 Matter of fact, additional erosion occur because water
4 and gravity of water -- caloric water will slide and
5 erode more of the material that is in the neighbourhood
6 so they become bigger, but there is obviously a big
7 difference between certain elements of this.

8 Q. Now, for the benefit of other
9 parties, you have indicated that this occurred in the
10 Long Lac Forest in 1990. Would you know the township
11 name or could you specify the site more precisely?

12 A. Yeah. It's very much -- 25 miles
13 north of Long Lac on a road which I forget. It also
14 has a camp operation. But, you know, here we are
15 getting too specific and I resent actually being too
16 specific here because this occur overall.

17 I can show you dozen sites in Long Lac, I
18 can show you Great Lakes, I can on -- everywhere I went
19 I have seen instances of this situation. So for
20 heaven's sake, I don't want to see management being
21 fired in Long Lac because I opposing to these kind of
22 practices.

23 Q. I appreciate the concern, Mr. Marek.

24 A. This concern is serious. However, is
25 no problem if you know where it is, no problem to find

1 it everywhere.

2 Q. I'm ready for the next slide if you
3 are.

4 A. Thank you.

5 Q. This is now slide 43.

6 A. 43. This -- well, here I go jumping
7 away ahead. You want to know exactly where this
8 happen. This camp 93, take picture -- picture taken,
9 what did I say here?

10 Q. You didn't actually.

11 A. I didn't. What slide number?

12 Q. 43.

13 A. 43, dried out humus, exposed bedrock,
14 yeah. What's happened, Madam Chair, Mr. Martel, is
15 this: If you expose your garden, if you expose your
16 lawn to the effects of solar radiation, temperature
17 change and so on, you know that because your grass is
18 getting yellow and so on, you know that.

19 Now, the same thing, of course, happened
20 here, the vegetation which is exposed to the drastic
21 environmental changes; in other words, removal of
22 canopy, removal of the forest has an impact on,
23 firstly, the vegetation presented here is the
24 vegetation I have shown you for first few slides, that
25 green beautiful feather mosses carpet, that change into

1 this kind of thing.

2 And actually what you have here, the
3 moisture has been withdrawn due to the exposure, and I
4 believe we can talk about the evapotranspiration
5 process and all these chemistry, but it result in one
6 way or the other in the death of this humus layer and
7 turn it into very infertile compounds of celluloid
8 which does not support very readily biological activity
9 because the biological activities which are created by
10 organism cannot survive on exposed site like this, they
11 haven't got a chance.

12 Many scientific records, many scientific
13 documents dealing with mycorrhiza, many millions of
14 different species of fungi which are making these sites
15 active, productive, giving us the timber we need is
16 jeopardized by this exposure and rendered unproductive.

17 Now, here comes the other point where he
18 says: Well, for how long? And I think that's becoming
19 impatient, how long this going to last. And I have
20 done this research for many years because these slides
21 which may come from 1957 or when I think it was,
22 obviously is showing to me that recovery occur, that
23 recovery is very slow, very cumbersome, but recovery
24 occur because nothing last forever. The permanency is
25 not there, so eventually, eventually there will be

1 pioneering bacteria, bacteria which -- grasses, which
2 will move in, occupy these sites, and decide to start
3 again, but it's a very slow and cumbersome process
4 which, if we cannot afford, is one thing.

5 I personally feel that forestry should --
6 never should afford it, because please note that site
7 produced beautiful timber. Here you have the stumps
8 which were harvested. Can anybody answer me that
9 question: How you going to plant these areas?

10 You know, I was in Yugoslavia two years
11 and I visited the site which I visited as a student in
12 Yugoslavia which have a very alkaline soils and has
13 been deforested hundred years ago by exploitation of
14 timber; in other words, people coming cut and cut, cut,
15 you know, I have seen reforestation project where
16 people dragging baskets of soils up the mountains, they
17 call it crusts, putting these basket of soil on these
18 denuded bedrock sites and try to plant trees in them
19 them.

20 Now, we are not that far as yet, we still
21 have a timber to cut, we don't have to carry baskets
22 because we have so much forest lands, we have got so
23 much forest land, and still the myth is going that we
24 have got, you know, untouchable vast, vast area we can
25 go to.

1 Well, there's limit to everything and
2 when I present this case many years before, before
3 learned audience of foresters and managers and so on,
4 the answer I got quite frequently about this kind of
5 concern - and I don't give a damn here if you have 30
6 or 40 or 60 per cent representation in the forest
7 land - even if we have one acre only, this to me is not
8 necessary. Madam Chair, I call this a poor forest
9 because nature gave us this, and we wind up with this,
10 and perhaps it's time to reverse this because we don't
11 have to get these kind of conditions if we modified our
12 cutting practices, if we final realize that you cannot
13 grow a plant an establish new stands after this has
14 been done.

15 Now, this is just one concern on one
16 specific site, I could go in the sites in Clay Belt, I
17 could go in sites in other areas where very similar
18 things occur and immediately I know how much of this we
19 have, how much these conditions we have and where is
20 it, is that on the Domtar, is that at Armstrong, is
21 that on Thunder Bay, is that in Clay Belt, and my
22 answer is to my good forestry conscience as a
23 professional, one acre is too many.

24 Next one, please.

25 MS. SEABORN: I'm sorry, Ms. Swenarchuk,

1 were we able to identify where that slide was taken.

2 MS. SWENARCHUK: I don't know that we
3 attempted to. Would you flip it back, please.

4 Q. Could you tell us, Mr. Marek, where
5 this picture was taken? We will consider this at the
6 break, Ms. Seaborn, and then speak to you.

7 THE WITNESS: Counsel, every projection,
8 I think I said exactly where it is.

9 MS. SWENARCHUK: Q. Fine.

10 A. And I took it, and I know I could
11 have taken this slide anywhere in the boreal forest.
12 I'm sorry.

13 Q. Fair enough.

14 MS. SWENARCHUK: Madam Chair, did you
15 want to take the break now?

16 MADAM CHAIR: Is this a convenient time
17 for you, Mr. Marek?

18 THE WITNESS: It's fine with me.

19 MADAM CHAIR: Let's take our afternoon
20 break now. We will be back in 20 minutes.

21 ---Recess taken at 2:40 p.m.

22 ---On resuming at 3:05 p.m.

23 MADAM CHAIR: Please be seated.

24 THE WITNESS: We are back again, Madam
25 Chair, to the slide No. 43, dried out humus and exposed

1 bedrock, one year after cutting and, as I said, this is
2 very old slide, I just -- but I assure you that this is
3 kind of picture I can supply by hundreds from different
4 areas in the boreal forest.

5 May I have slide No. 44 then.

6 MS. SWENARCHUK: Q. And with regard to
7 the location of this one, Mr. Marek, the revised list I
8 assume should read normal operation, 1987 Sangster
9 Township, Iroquois Falls Forest; is that correct?

10 A. This one here?

11 Q. Yes.

12 A. That's correct, yeah.

13 Q. All right. Go ahead.

14 A. In the Clay Belt where you have a
15 very pronounced humus made of partly decomposed and
16 fully decomposed deciduous mosses this is quite
17 different but, again, you can see the strategy is that
18 the area is clearly barren and does not resemble the
19 first slides where I showed that fellow in the slide,
20 the slash has been removed by the full-tree operation
21 to the landing site and been disposed there.

22 So this was my intent, to more or less
23 present the various condition of logging.

24 Q. Now, Mr. Marek, with regard to the
25 history of this site, is this a site that you have

1 returned to frequently?

2 A. That's right. I have been to this
3 site primarily, that site has been -- as a matter of
4 fact there were some trials by seeding made by Canadian
5 Forest Service, so I was interested in that --

6 Q. And is that indicated on the slide by
7 a marker?

8 A. I think there is marker here some
9 place, yeah. They tried to seed the area to black
10 spruce and they had some continuous trials. I don't
11 know how far it is now, but this has been planted by
12 Abitibi.

13 And I am returning frequently to the site
14 because this represents very well some of the richer
15 site in the Clay Belt which, as I said, have this very
16 pronounced layer of organic material over clay and they
17 are being clearcutting normal fashion and the slash
18 area clearcut. Maybe that little island there makes me
19 suspicious of some kind of modified approach.

20 I don't know if that is seed source place
21 where the seeds should be, I don't know. Maybe it was
22 bypassed due to some other constraint. But, yeah, this
23 is a very interesting area and it's very representative
24 of some of the more fertile sites in the Clay Belt.

25 Q. Now, Mr. Marek, is there a concern on

1 this site with regard to water levels?

2 A. In places -- I think I have other
3 photographs here right beside this with a road going
4 through that other area which is much moister or much
5 wetter than this one.

6 If I may quantify some of this excessive
7 moisture that is paramount, in my view, to the
8 temporary productivity, temporary because the water
9 level is usually product of cutting immediately after
10 disturbance -- man-made disturbance, water level rises
11 in some area, conserves some areas not as heavy but in
12 general water rises because the process of
13 evapotranspiration is disturbed, we are removing --
14 what we are doing, Madam Chair, is basically this: the
15 tree is a pump which move the water and transpire it,
16 it's a cycle in the pump.

17 Now, when you remove that pump the water
18 has got to go someplace, and usually what's happened
19 the water stay on the site and depending on the site
20 condition; in other words, does the site let the water
21 through or accumulate it, is there some other obstacle
22 which accumulate the water, is very important. On some
23 site the evaporation of water happen very quickly, on
24 some site it takes a long, long time; in other words,
25 water is standing there.

1 The added problem, of course, is when you
2 log you are using certain equipment which disturbs
3 farther the site and then you have accumulation of
4 water in the ruts, ditches and so on.

5 So basically the water got to go
6 someplace if trees are removed, and that may cause
7 great concern, not perhaps permanent concern, but
8 concern during certain period of time.

9 In many publications the problem of water
10 table is there, at least it's a temporary problem, it's
11 a temporary problem. So my finding when I have visited
12 many sites where this temporary problem may last two,
13 three, four years and eventually new channels are --
14 revegetation occur where the pumps start initiating the
15 process of cycling the water and nutrients with it.

16 Of course in some cases it may take long
17 period of time. For instance, this furrow which I have
18 seen over there, is really excessive dry, because there
19 you cannot talk about water problem period because
20 there is always deficiency of water, and by presence of
21 these living feather mosses that water can be preserved
22 or conserved, but if you remove it and it dry out, it
23 can't do it.

24 So we have quite a large, large patch of
25 effects of removal of tree on the site depending -- my

1 learned friend, Mr. Baskerville, at the beginning said
2 we have a thousand different forests with thousand
3 different conditions. That applies also for water
4 circulation, surpluses and deficiencies.

5 Q. Mr. Marek, do you recall the history
6 of this particular site with regard to water
7 fluctuations?

8 A. Well, I can say a year or two years
9 after it was clearcut there were some problems, but
10 here in this particular interest I don't think there
11 was really serious problem. It was shown on other
12 side -- apparent other slide where the water came up
13 really by showing an effect on vegetation and because
14 vegetation is a very important indicator of water
15 problem, the tolerance which makes a difference.

16 Some plants can take lots of water, some
17 plants cannot take water at all; some species strive or
18 thrive under these conditions, some don't, and when you
19 have a really problem is -- perhaps we can turn and see
20 the other slide, please.

21 Q. The next slide then is slide 45.

22 A. Where you add the disturbance by
23 logging and, in this case, this is an area in Long Lac
24 again in area north of road mark -- I'm sorry, I cannot
25 tell you the camp number - but it's an operation which

1 was conducted last year. And you have a really heavily
2 disturbed by machinery and this is machinery which has
3 called flotation and wide tired skidders or grapple
4 skidders or grapple, so you can see that disturbance
5 can be pretty heavy.

6 Now, depending on the time of the year
7 though you may have water or you may have it like this,
8 but by creating channels like this, and I suppose the
9 common name would be rutting, you are introduce great
10 problem because you have lots of compaction here in
11 these furrows and you have a loose material which is
12 heaved up and is mounded there, so here it's going to
13 be pretty difficult to put and if you -- depending on
14 natural regeneration, there would be all kind of
15 frosting, heaving, placement, erosion and so on,
16 because these furrows usually are very small until they
17 get established, and when you plant this area you are
18 fighting problem of flooding because by next rain or -
19 this is immediately after logging when they create the
20 furrow - and later on this is going to fill up with
21 moisture or water.

22 The water become stagnant; in other
23 words, by stagnant I mean the oxygen will not be going
24 through the rutting and the survival is very
25 questionable in those areas.

1 Q. And just to be clear, Mr. Marek, from
2 the slide list, this is a slide that was taken last
3 year?

4 A. Last year.

5 Q. And this was a harvest that occurred
6 in 1989; is that right?

7 A. That's right.

8 Q. Okay. Slide 46.

9 A. Can you bring that slide back. One
10 thing which is hard to point out here is this: This
11 was modified cutting, this is so-called strip cutting
12 and you see can see remaining strips are here. The
13 strips were 100 metre wide - I just forgot now - but
14 let's talk about the purpose, let's talk about
15 philosophy behind this kind of problem.

16 Leaving strip cutting, modified cutting
17 for two reasons; if a heavy cut improvement for moose,
18 leaving some standing timber behind so the moose can, I
19 suppose, use the foliage here or can lay over winter or
20 maybe there is less snow there in the clearcut area, so
21 they may stay there.

22 The other one, of course, is for future
23 regeneration, and while I don't have a complaint, leave
24 timber behind for moose, generally known as a refuge
25 area or something like that, what bothers me is the

1 silviculture aspect here, the efficiency of modified
2 cutting.

3 Madam Chair, when modified cutting is
4 done it usually is done for both for fish and wildlife,
5 at least the way I understand it, and also for
6 satisfactory regeneration to the primary species. By
7 modified cutting you are looking for seed source which
8 comes from here, and now the problem starts, what kind
9 of seedbeds do you establish, and I can assure you that
10 this is not very favourable seedbed for any
11 regeneration purposes regardless if you're going to
12 plant it or if you are going to depend on the seed
13 source from here, this going to be a pretty tough
14 problem for this kind of damage done by logging
15 equipment.

16 Now, the question frequently asked is
17 this: How quickly this site will rehabilitate or bring
18 to normal condition. My guess would be it takes a
19 long, long time because it takes a long time to
20 stabilize this, to balance the water table, and for
21 quite a few years after this happen we are going to
22 have a problem of tree survival, if it's seeded or
23 planted, we are going to have a problem of tree growth.

24 In other words, mortality and growth and
25 the causes are very simply, the causes of this kind of

1 damage is that we do not use logging equipment properly
2 and improper time. Area like this probably, and I
3 think probably, is to be harvested in winter when you
4 have protection of heavy snow cover where this
5 equipment can move freely without disturbing the
6 organic strata which become extremely volatile and the
7 moisture problem.

8 So strip cutting, fine if it's for moose,
9 but if it's for regeneration of black spruce or
10 artificial regeneration, then I must say this is waste
11 of effort. This is not proper way to do it.

12 I like to emphasize this. It was --
13 again, this is happening frequently all over boreal
14 forest in the sites like this. There is some
15 improvement, there is some improvement being done by
16 flotation tires, by high flotation tires, of course by
17 using proper timing for these activities, but under
18 summer conditions, spring and fall conditions to get
19 engaged in any harvesting means jeopardizing the
20 silviculture treatment after.

21 The results are fairly well visible in
22 this slide. I am going to follow up with some of the
23 other slides which show if you do plant trees in this
24 area what kind of progress or what kind of results you
25 are going to get.

1 May I have the other slide, please?

2 Q. Just one question.

3 A. Yeah.

4 Q. As you have indicated, this is an
5 example of strip cutting.

6 A. Mm-hmm.

7 Q. I just want to be clear. Do you have
8 some objection to this condition, do you object to the
9 fact that strip cutting was done here?

10 A. No, I think the prescription is
11 right. Perhaps one complaint I would have for this
12 kind of condition, I would probably narrow up the skid
13 somewhat, but we have documentation that many of these
14 sites, strip cutting for natural regeneration is fairly
15 effective in the wider strips; in other words, width of
16 the strip plays a role here for seeding in.

17 And my friend Jeglum state on several
18 occasions in his publications that up to 200 feet would
19 be acceptable under certain conditions, in area of
20 lowlands where you have lots of spagnum representation,
21 but here comes the problem, we didn't do that, we
22 disturbed completely the site and the microsites and
23 the condition of sites are not conducive to any kind of
24 regeneration unless you honestly want to have the trees
25 die there, so...

1 MS. SEABORN: I'm sorry, Mr. Marek, I
2 couldn't hear that last comment.

3 MS. SWENARCHUK: Unless you want to have
4 the trees die.

5 THE WITNESS: Yeah.

6 MADAM CHAIR: Mr. Marek?

7 THE WITNESS: Yes.

8 MADAM CHAIR: Are there any scarifying
9 techniques that are successful or partially successful
10 in rehabilitating some of the rutting?

11 THE WITNESS: Yes, there are, but the
12 equipment which is very expensive and is foreign made
13 equipment and the point you are making, Madam Chair, is
14 is very right, being confronted with these conditions,
15 you know, over millions of hectares in the boreal
16 forest aren't we somehow lagging behind in technology,
17 in the construction of equipment made in Canada to be
18 concerned about these conditions.

19 There is lots of equipment done, and I
20 think that I went through all of them, I highly
21 emphasize some of the equipment when I make
22 recommendation to Swedes, where they came up to the
23 area and said: What do you need up there and so on,
24 and the answer is we are importing Bracke, Bracke is
25 equipment which is one that was mentioned here during

1 the hearings quite frequently and I have worked with
2 KBM for years and years to improve the new tramping,
3 the tramping method behind Bracke scalps, why I mention
4 because I do the book, you can improve 50 per cent
5 effectiveness of your seeding if you are compacting a
6 little bit, and so...

7 But, there is a guy who is here 40 years
8 and telling you after 40 years you have to compact the
9 soil in order to improve seeding, you know, is not all
10 this stupid that we have to then go all the way to
11 northern Sweden to get this equipment done - and she's
12 very expensive by the way, the Swedes they really soak
13 us, and everybody else for that matter - but is there
14 something, with this kind of land dependent on the
15 timber, depending on the health of the sites,
16 production, future yields and whatever, that we cannot
17 design equipment which really works.

18 Your honour, may I mention a case which
19 really upset me?

20 MADAM CHAIR: Go ahead, Mr. Marek.

21 THE WITNESS: Okay. This condition are
22 not new, it's old hat, however, I said to myself I'm
23 going to go to United States to get equipment which I
24 need.

25 So I went to FMC - and I don't know if

1 you're aware of FMC, it's a big multi-national
2 organization which is involved in army; namely, tanks
3 and war activity, but they came up with machine I have
4 seen which is a tracked vehicle.

5 MS. SWENARCHUK: Could you speak up,
6 please, Mr. Marek.

7 THE WITNESS: Can you hear me?

8 MS. CRONK: No, we are having trouble,
9 Mr. Marek. Could you speak up.

10 THE WITNESS: Okay, I'm sorry, Madam.

11 MS. CRONK: Thank you.

12 MR. FREIDIN: I'm just wondering, Madam
13 Chair, if it would be convenient for Mr. Marek to
14 actually take that mike off and speak into the mike.

15 THE WITNESS: Speak into the mike. I do
16 anything you want. Okay. Can you hear better now.

17 MS. SWENARCHUK: I don't think it will
18 make any difference, frankly.

19 THE WITNESS: Okay. I'm going to start.
20 Okay, let's start for a second.

21 MS. SWENARCHUK: Just speak up, and if we
22 have a difficulty, I will remind you.

23 THE WITNESS: Oh, I have a problem here,
24 I like to serve the Board, I like to talk.

25 So anyway, I went to United States to get

1 specialized equipment from FMC, and some of you are
2 aware of FMC, I tried to explain this. FMC said: Yes,
3 we have one, it's a logging equipment used in Oregon
4 and on the west coast on the steep slopes, has a
5 minimal impact on the site because they have a
6 stringent law in the United States, much better than we
7 have, about site disturbances and so on, and said:
8 Yes, we have an FMC here, three or four different
9 types, one with boom, within with this, one with -- but
10 they are tracked vehicles, very light vehicle which
11 does not disturb site as this.

12 The price was \$250,000 at the beginning
13 and I said: Gosh, where am I going to get \$250,000 for
14 lousy piece of equipment that is going to do better job
15 than this, but I got it, I rent one.

16 The FMC agent in Toronto here he got one
17 from the United States, many people came up to watch
18 it, matter of fact 1978 at the conference it has been
19 demonstrated in the bush how it works. It works very
20 well. I did lots of site preparation with it, but I
21 just couldn't afford it.

22 And there is no reason we couldn't have
23 an FMC or vehicle like that made here. There are some
24 trucks we need to make for Hydro for instance, there
25 are some terrain we need to make -- so the problem is,

1 yes, there is knowledge, there is technology, we could
2 use, but who going to fund it, and how you going go
3 about it?

4 MS. SWENARCHUK: Q. Mr. Marek, would
5 there have been a way of logging this site that would
6 have precluded this damage and any need to use
7 ameliorative techniques afterwards? Could you have
8 prevented this damage from happening by logging it
9 differently?

10 A. Good question. You have two choice,
11 Madam Chair, you can use it this way; in other words,
12 clarify the position of wood or road, road is right
13 here, the equipment used was hauling that wood on the
14 road, piling up for delimbing, slashing,
15 transportation. The operator or the foreman who is in
16 charge of the operation can say this: Look, buddy,
17 instead of doing this, you are going to concentrate on
18 one pass and really bugger it up or really destroy it,
19 instead of destroying the whole strip. So that shows,
20 that's a very simple one. Or the option here is to
21 make the whole site, or make the damage to the whole
22 site and forget about that little strip. So what
23 choice do we have?

24 --You going to destroy something, you going
25 to make certain area non-productive or very, very

1 questionably productive for quite a few years to come;
2 you going to do it on the whole pass, you going to do
3 it here only, or where you going to do it. That is a
4 decision which is protective measure, and at the
5 beginning of my speech I said that we are deficient to
6 design protective aspect of management, and I think
7 that is coming loud and clear here; where if anything
8 we will have to improve this condition in order to keep
9 the site productivity in a shape which will produce
10 richer forest. This going to be a tough one.

11 Q. Mr. Marek, if this had been harvested
12 in the winter time, would that have prevented damage?

13 A. Yes.

14 Q. Fine.

15 A. This would not occur if it was done
16 under cover of snow, say, in Long Lac they usually get
17 just like they get in Beardmore between three and half
18 and maybe four feet, yes, that would do the trick.

19 Q. Now, I think the next slide is the
20 same site one year later; is it not?

21 A. Right.

22 Q. If we could move to that. This is
23 now slide 46.

24 A. Okay. Madam Chair, you have seen
25 these furrows, you have seen these trucks digging into

1 the organic material, so next spring you go there and
2 you can see this. Now, can you imagine planted trees
3 here, planted here or even planted here, it's going to
4 erode, it's going to be collapsed, and the other thing
5 of course here is very simple, tree cannot grow under
6 these conditions because that water becomes stagnant,
7 there is lack of oxygen, and that tree will die as it's
8 shown in next slide.

9 Next one, please. Here we go in
10 different part of the country, this is area north of
11 Ear Falls not far away from the lake, what is the lake
12 name, Lac du Milles.

13 Q. This is described --

14 A. What slide is there?

15 Q. Slide 47, a site prepared cut-over
16 area, 1987, in the Trout Lake Forest, Ear Falls.

17 A. North of Ear Falls. Here in the
18 upland sites just a completely different site what we
19 have seen in previous slide. In previous slide you
20 have a large organic material, lots of mineral soil,
21 clay underneath; here you have an extremely shallow
22 site which is composed of humus and bedrock and maybe
23 traces of soil pockets here and there and boulders.

24 This picture was taken 1987 and this is
25 very extensive across northern boreal forests, and the

1 site preparation tool was the barrels, you probably
2 heard that name in previous testimony, barrels.

3 Now, barrel is part of my invention
4 because I drag the barrels many, years back and I
5 always said as a temporary kind of site preparation
6 tool, fine, until we get something better. Now, we are
7 still dragging barrels. I know the barrels being
8 dragged everywhere in northern Ontario in order to make
9 site preparation. I think it's time to say good-bye to
10 barrels, because this is the result of barrels.

11 On sites like this used, you are making a
12 cement floors here.

13 Q. Cement floors, is that what you said?

14 A. Beg your pardon?

15 Q. Cement floors?

16 A. Well, it's just bunch of bedrock
17 exposed, so you have just like a cement truck or
18 whatever, it's just like cement.

19 Now, this is -- now, again, here that
20 site will not be barren forever, I can assure you it
21 will be revegetated, probably was seeded; in other
22 words, they planted here, I think they seeded this area
23 and you can quite be quite successful, but what is the
24 problem here give me a growth prognostication on this
25 site in next 15, 20, 30 years, give it to me, tell me

1 what this site is going to produce in next 30 years,
2 especially in jack pine, because pure black spruce as
3 you see here originally. I think the jack pine going
4 to grow for next five years or maybe 10 years very
5 well, there will be some, but would you tell me what
6 there in fact will be later on on this dynamics of
7 these stands.

8 Yes, go ahead, please.

9 Q. What, in your view, should have been
10 the management prescription for a site like this?

11 A. Very careful site preparation where
12 you not create these corridors of bare rock because
13 immediately you are introducing erosion, immediately
14 you lose nutrients by this channel.

15 Look at that little pothole there. The
16 chemistry of this is interesting because several years
17 back I got a chemist, I says: You tell me about
18 chemical composition this and you give me -- this is a
19 garbage dump, this is nutrient piled up, eroded and
20 moved by erosion into this lower lying areas rotting
21 away there because it cannot be mineralized nitrogen
22 produced because mineralization of nitrogen is very
23 delicate process and in these pools it's becoming a
24 real garbage dump. It smells in summer too.

25 Yes?

1 Q. Now, given this current condition,
2 would you be able to predict or would you predict for
3 us what would be likely to happen at five years, 10
4 years and 30 years on this site; is it possible?

5 A. Now, based on -- again, I cannot
6 predict ths because I am not there five, 10, 15 years.
7 I will come back to it and I may tell you next year
8 when I go back what it looks like, but right now this
9 is my first visit and first picture of that specific
10 site which may be completely different from this.

11 But my guess would be that because these
12 sites are not unique, because these shallow sites,
13 shallow tills over bedrock and so on right around the
14 northwestern Ontario, that's what the country is made
15 of, my prognostication would be that if it's reforested
16 immediately, immediately crown closure immediately
17 achieved, or immediately say two, three, four, five
18 years as I described to you in previous slides there,
19 get crown closure; in other words, you are going to
20 establish lots of seedlings here, that the restoration
21 and the rehabilitation of these sites will progress
22 much quicker than if you plant one tree here, one tree
23 over there, and one tree over there.

24 So it's a strictly problem; eliminate
25 erosion, get area into nutrient cycling as quickly as

1 by presence of lots of trees and then you will see what
2 is going to happen to that jack pine, because that jack
3 pine actually originally was not there, it was black
4 spruce.

5 And because jack pine is very quick
6 initial grower; in other words, jack pine grows very
7 rapidly, very good height increment in the first years
8 after establishment. Let's hope, let's hope that this
9 jack pine will be able or this nutrition capital here
10 will be able to hold that pine beyond 10, 15, 20 years.
11 So that's my answer, that's a prognostication I can
12 make.

13 Q. Okay. Now, is this a site -- Oh, I'm
14 sorry, Mr. Martel.

15 MR. MARTEL: If you had written the
16 prescription for that site before it was harvested, you
17 say it was converted from black spruce to jack pine?

18 THE WITNESS: Right.

19 MR. MARTEL: You've also said in much of
20 your testimony that the trees that there should -- I
21 think you were indicating every effort should be made
22 to get the same type of tree there.

23 THE WITNESS: Right.

24 MR. MARTEL: Would you have converted
25 that from black spruce to jack pine; and the second

1 part of the question, what type of equipment would you
2 have used to reduce the size of the ruts as opposed to
3 barrels?

4 THE WITNESS: First of all, I would not
5 convert this original -- black spruce site to jack
6 pine, I would not. I know I get argument by some
7 people who say they do it and we hope it's going to
8 produce, but they going to say, we hope it's going to
9 produce. I.

10 Would say, no, categorically no. This is
11 a black spruce site, I like to have black spruce back.
12 How would I approach site preparation. In any shallow
13 sites, "fragile, sensitive, shallow tills over
14 bedrock", and all these qualification which sometimes
15 are disputed and say no, no, doesn't exist, I would
16 using modified cutting, natural regeneration, proper
17 site preparation perhaps with equipment which wouldn't
18 do the damage as barrels because barrels are monsters,
19 those are big, big steel cement-filled things which
20 bounce all over and sometimes produce a furrow deep as
21 up to your knees.

22 So I wouldn't use that, I would use
23 something which is much milder in its effect, much more
24 compatible with the situation of shallow sites. Is
25 that satisfactory?

1 MR. MARTEL: Thank you.

2 THE WITNESS: Next one, please.

3 MS. SWENARCHUK: Q. This is now slide
4 48.

5 A. 48, full-tree harvesting, Gordon
6 Cosens Forest, 1987, delimbing and slashing site.
7 Let's go in a little bit touching on sustained yield,
8 little bit touching on how much area are we actually
9 removing from productive forest land annually across
10 the boreal forest, never mind on a licences, just...

11 When I was working out of Geraldton
12 District we have made survey, which I didn't include in
13 my testimony, again the report is not available and --
14 but we made a survey of Kimberly Clark where we have
15 estimated that that time where we had a full -- the
16 system of tree harvesting, not full-tree but just bole
17 of the tree leaving slash, where we have estimated that
18 over 10 per cent of the productive forest land is
19 occupied by landing sites, roads, et cetera.

20 Now, everybody was shocked because nobody
21 said: Gosh, 10 per cent of the total productive land
22 being removed, and again, I state removed, there will
23 be some trees growing on it but they will be temporary
24 removed from the production. Ten per cent is lots of
25 acres when you take over the total area of harvesting

1 and that scared us, and made a long discussion: Well,
2 how can we -- we said: We need landing sites, we need
3 loading sites, we need space for this machinery, we
4 need space for that machinery, so so much is gone,
5 tough, tough, it's there. So remove 10 per cent, fine.

6 Now, we are presently, as you know, close
7 to 70 per cent -- in statistics they are saying 60 per
8 cent, but I think over 70, matter of fact even more, 80
9 per cent is being conducted by harvesting which is
10 called full-tree harvesting.

11 MS. CRONK: Excuse me, Madam Chair, Mr.
12 Martel. I'm sorry to interrupt, Mr. Marek, if I might
13 for a moment.

14 This is the first indication that we have
15 had of a survey conducted on KC - Kimberly Clark -
16 lands with respect to this particular harvesting
17 technique and the witness has indicated that it was not
18 mentioned in his evidence, I take it because I think he
19 said, I tried to get it down, that the report was not
20 available.

21 Before he goes any further in describing
22 either the nature of the survey efforts that were
23 undertaken or the results, could I have an
24 understanding as to whether there are going to be
25 particulars produced with respect to the nature of this

1 survey, what was actually done, so that I might seek
2 instructions from our representatives at Kimberly Clark
3 and be informed about the matter. I had not heard
4 about this before.

5 MADAM CHAIR: Ms. Swenarchuk?

6 MS. SWENARCHUK: I can discuss this with
7 the witness after four, if that is satisfactory, Ms.
8 Cronk, and provide to you what particulars we can
9 obtain.

10 MS. CRONK: That is satisfactory. And
11 perhaps in those circumstances, Madam Chair, rather
12 than belaying the proceedings at this point, the
13 witness could leave the subject until I have had that
14 discussion with Ms. Swenarchuk and we can sort out
15 whether there will be any objection on our part to any
16 further opinions concerning the matter, if that would
17 be acceptable to the Board.

18 MS. SWENARCHUK: I think he's already
19 left the subject, Ms. Cronk, and is going on to current
20 conditions with full-tree harvest.

21 MS. CRONK: I don't know. If that's the
22 case, I'll take it up with Ms. Swenarchuk afterwards.

23 THE WITNESS: Madam Chair, I am sorry
24 that I cannot provide information required, I was part
25 of that information --

1 MS. SWENARCHUK: Q. Mr. Marek, we can
2 discuss that later and satisfy with --.

3 A. But I don't -- counsel, I do feel
4 that time is precious, I feel that I cannot provide
5 this information because I haven't got the report and I
6 think it would be strictly my guess from there on as
7 far as the counsel over there suggests. So let's skip
8 that whole thing.

9 I do not wish particular elaborate on
10 this issue, it's done, it's done, let's go to this. Is
11 that satisfactory with you, Madam Chair?

12 Q. Exactly.

13 MADAM CHAIR: Yes.

14 MS. SWENARCHUK: Q. Exactly, Mr. Marek.
15 You can proceed with the discussion of full-tree
16 harvest associated with this slide, that's exactly
17 satisfactory?

18 A. Okay, fine with me. Fine with me.
19 Okay. Let's go here on the picture which is presented
20 on the particular place and shows the vast landings
21 created by logging operation, by delimbing the crowns,
22 by limbing the trees, by cutting it up and by the way
23 the road is over here, it's a main road, you can see it
24 right from the highway here, and here are the
25 conditions left after the company processed their

1 material, raw material.

2 Now, there are many merchantable sticks
3 here; in other words, trees which poorly and properly
4 utilized, could have been chips, could have been
5 utilized as a fiber. Now, that's a matter of MNR
6 inspection, that's a matter of enforcement of Crown
7 Timber Act which I do not wish to -- because I don't
8 think that should be issue, we do our job, if it's not
9 being done, fine, because there are certain stipulation
10 which classify exactly what merchantable material is,
11 what merchantable stick is, so forth and so on.

12 But because I suggested to you to discuss
13 the subject of productive forest land and reduction of
14 forest land here, again we have -- timber was
15 harvested, this is a product of -- winter road here,
16 well, here's my truck matter of fact, yes, and we are
17 faced with this kind of situation.

18 Now, the question I like to ask the Board
19 is this: Why do we create situations like this? Why
20 is it that for these several acres - and I didn't
21 measure it and I cannot provide analytical
22 documentation that forest land which produced timber
23 before is treated with this residue here which probably
24 belongs someplace else, some of it belongs to the mill
25 obviously as their fiber, some of it belongs to

1 - probably back to the cut-over sites where they taken
2 away in the first place - why this is practice?

3 We are removing substantial area, and I
4 don't want to argue about percentages because obviously
5 the theme of discussion like to be giving two and a
6 half, or 2.4, five, six acre multiply by productive
7 forest land in Ontario and I give you the damage. No.

8 But even such a condition allowed to be
9 existed in our forest land where this area is rendered
10 unsuitable for regeneration, I don't see you can
11 regenerate, I don't know how you going to produce trees
12 here. So this is a question which I am concerned:
13 How are we going to eliminate this? How are we going.

14 I know the reason why it's done, I have
15 witnessed it for many years, but the question to MNR
16 would be, and to the public: Are we happy with this
17 condition where we realize that lots of this stuff
18 should be probably utilized as fiber, there is nothing
19 wrong with it, it's left there, and perhaps the slash
20 and needles should be put where we took it.

21 So that's explanation to the slides,
22 Madam, and perhaps we should leave this question.

23 Q. We are now at slide 49.

24 A. This slide was taken on Lake Nipigon
25 Forest. What number was it, Ma'am?

1 Q. This is 49, normal operation.

2 A. Normal operation, poplar seed trees,
3 Lake Nipigon Forest. Okay. This is a different
4 subject already and I do already discuss all these
5 aesthetics of this picture where we have these logs all
6 over and looks like "deserts" and this, not very good
7 picture, however, this is a cut-over, normal operation
8 where we are faced all over wherever we go. In
9 northern Ontario, regardless where you are, you are
10 confronted with except you are on the sandy dunes or
11 sandy outwashes where you have of course jack pines
12 stands, and I am dealing in particular here with black
13 spruce, these are black spruce sites.

14 And cut-over has been scarified and the
15 argument I'm putting forward here is a simple one: Why
16 do we leave these poplar trees standing as a seed
17 source? Hundreds of cuts, thousands of cuts, buy the
18 equipment as we might to remove, remove the spruce from
19 here, they didn't have a time and effort was not put in
20 to remove these seed trees which will seed itself - and
21 I don't want to go in discussion right now of seeding
22 or the ability of trembling aspen or poplar - to seed
23 **itself into the cut-over area if scarified. That's a
24 seed source which is recognized by many people
25 nowadays, it's not only coppicing or the reproduction

1 by suckering which there, it's a seeding influx, an
2 input into the sites of cut-over.

3 These seed trees going to eventually
4 occupy large area of these cut-overs and in cases been
5 planting which has been done, going be later treated on
6 with chemicals in order to eliminate the competition.
7 Why are we leaving these seed trees there when this can
8 be removed during the operation by one, two, three,
9 four, five, six, seven, eight, nine, ten, eleven,
10 twelve cuts, bang! down they go, no seed source any
11 more. Why are we leaving them standing to perpetuate
12 poplar on these sites? Why are we then using
13 herbicides to eliminate the competition and remove
14 them?

15 Those are questions I am asking. And,
16 again, I cannot analytically document how many suckers
17 will come out of these seed source, or how many seeds
18 will be dispersed over this cut-over, but it will be
19 necessary, matter of fact absolutely essential to
20 protect the plantation which is established here. This
21 is a problem.

22 We call it clearcutting, harvesting,
23 prescription is clearcut. Madam Chair, clearcut to me
24 is clearcut, you remove most of the vegetation from the
25 area, and I am talking about trees vegetation; I am not

1 talking vascular plants, I am not talking brush, I am
2 talking trees. This is a tree which can reproduce
3 itself by suckering or by seeding. Is that
4 prescription right; is the terminology right in this
5 case if they call it clearcut?

6 Obviously this is not clearcut, this is a
7 seed tree system harvest, we leaving the seed trees
8 here in order to give them free hand to occupy this
9 site prepared site. In other words, we are leaving it
10 there to capture this site from black spruce. Go ahead
11 poplar, you are there, do your job, and they do.

12 Q. Now, Mr. Marek--

13 A. Yes?

14 Q. --in your witness statement you have
15 written about the problem of aspen competition and we
16 are going to discuss that in some detail later, I am
17 not asking you to discuss it in detail now, but if you
18 could just state briefly what is the implications, the
19 negative implications for that site and for
20 regeneration on the site of leaving those poplar trees?

21 A. Counsel, I just said it. I said,
22 hopefully clearly, that these trees acting as seed
23 source that this area will be reseeded by seed from
24 these trees and will be also reproduced by suckers
25 coming from these seed trees and endangering, thus, the

1 primary specie or production if its natural or
2 artificial.

3 On top of this, we are -- the treatment,
4 the tending treatment demands if we concentrate our
5 primary specie production, in this case spruce, that
6 this competition will be eliminated or curtailed; in
7 other words, we are -- best way to treat it, tend it,
8 by eliminate the poplar, and that means chemical
9 spraying in this case.

10 Q. Thank you, that was my question.
11 Move on to slide No. 50, please.

12 MS. CRONK: Before we do that, Ms.
13 Swenarchuk, I don't know if Mr. Marek can help, but can
14 he give me some indication where in the Nipigon Forest
15 that last slide was taken?

16 THE WITNESS: Vincent Township, Maam.

17 MS. CRONK: I'm sorry, I didn't hear you,
18 sir?

19 THE WITNESS: Vincent Township.

20 MS. CRONK: Thank you very much.

21 MS. SWENARCHUK: Q. We are now at slide
22 50.

23 A. This slide was taken, what is that?

24 Q. This is described as planting trees
25 on black spruce --

1 A. What slide number is that?

2 Q. 50, at the top of the next page,
3 planted trees on black spruce cut-over site prepared by
4 blading --

5 A. Iroquois Falls Forest, 1987.

6 Q. Iroquois Falls Forest, 1987. Can I
7 ask you first--

8 A. Yeah.

9 Q. --if you can be more specific about
10 where in the Iroquois Falls Forest this site is. If
11 you can't, that's fine; if you can, could you help us
12 with that?

13 A. Madam Chairman, let's resolve this
14 problem. I have maps showing, township maps and large
15 maps showing where I have travelled. In many instances
16 I have down a spot where I stop; in some instances I
17 don't.

18 Now, if I know 1987, and matter of fact
19 few weeks ago, that I have to provide such an exact
20 analytical and painful description of the condition I
21 have been too happy to serve.

22 MS. CRONK: Perhaps I can be of some
23 assistance, Madam Chair, and Mr. Marek I am grateful
24 for the reference to the map. I don't mean to go on on
25 that. In the interrogatories submitted by the OFIA and

1 the OLMA, in anticipation of this precise problem, and
2 they were submitted in the latter part of September, we
3 asked for specific township and management unit
4 references.

5 If the witness can over the course of
6 this evening or indeed even tomorrow evening take the
7 map to which - and I should say we didn't get the
8 township indications or I wouldn't have been on my feet
9 as I am, except in the revised slide list where
10 management units have been indicated, but some of them
11 are 12,000 square miles large, so you appreciate - if
12 the witness can take the map to which he refers and to
13 the best of his ability, that is all we ask, indicate
14 where these specific slides or photographs were taken
15 with reference to that map, it will save us potentially
16 a considerable amount of time and it will allow us to
17 seek the necessary information from our clients.

18 I would be grateful.

19 MS. SWENARCHUK: We will do what we can,
20 Ms. Cronk.

21 MADAM CHAIR: Ms. Cronk, are you asking
22 that this be done for 160 slides. Could you maybe
23 narrow it down a bit?

24 MS. CRONK: Well, I suppose I am, Madam
25 Chair. I mean, there are instances here where the

1 witness has specifically indicated inappropriate or
2 improper practices. I would have thought that in the
3 description of where those photos were taken, as has
4 been the case for other witnesses, there would have
5 been an indication where within these townships and the
6 area with which he's familiar they were taken.

7 But I will, in light of your suggestion,
8 review the list --

9 MADAM CHAIR: For example, do you really
10 need to know where the location of the wild fires
11 happens to be?

12 MS. CRONK: I will review the list. I
13 will review the list, Madam Chair, and I will see if I
14 can limit it.

15 MADAM CHAIR: Thank you, Ms. Cronk.

16 Mr. Marek, perhaps if you could produce
17 those maps that would be helpful. I don't know where
18 the maps are or --

19 THE WITNESS: No, but the maps matter of
20 fact we have them right here, counsel -- Madam Chair.

21 MADAM CHAIR: Well then, that will
22 clarify it, and Ms. Cronk will speak to Ms. Swenarchuk.

23 THE WITNESS: Very well. So I think --
24 I don't want to use this as excuse, but the maps are
25 here, but the problem I always had was that if I

1 produce, for instance, slide like this, I can take -- I
2 go back to my repertoire of slides and I can produce to
3 you probably does sense of the same conditions taken in
4 different locations.

5 I have thousands of slides, thousands of
6 slides which represent very similar condition varying
7 from Kenora right down to Quebec boundary. My
8 preoccupation, and I have tried to explain you my
9 method in this area, I know exactly when it is, I can
10 find it at night without flashlight, I can go because I
11 do it.

12 I go back again and I look at these
13 things, but when it comes down to, you know, identify
14 it's township such and such as, you know, township is
15 big territory and there is certain location in township
16 which can be pinpointed exactly by the division of
17 township territories.

18 Anyway, if you have seen township maps --

19 MADAM CHAIR: Many of them, Mr. Marek.

20 THE WITNESS: Beg your pardon?

21 MADAM CHAIR: Many of them.

22 THE WITNESS: Many of them. So, you know
23 very well how accurate you got to be, but in case like
24 this you got to spend probably half an hour or
25 considerable time to say, okay, here we are, where is

1 that exactly, here, is that exactly here. I cannot
2 tell you exactly. I know it's probably the township,
3 but I'm sorry, I cannot remember even what part.

4 MS. SWENARCHUK: Q. Well, Mr. Marek, we
5 will do what we can with it. Let's just --

6 A. Maps are available, counsel.

7 Q. Let's just try it and use the time we
8 have here with the Board to get on with the evidence.
9 So here we have slide No. 50.

10 A. Right.

11 Q. Which you have described as -- excuse
12 me, we will wait for the Board.

13 MADAM CHAIR: Go ahead, Ms. Swenarchuk.

14 MS. SWENARCHUK: Q. You have described
15 it as planted trees on black spruce cut-over site
16 prepared by blading in the Iroquois Falls Forest, 1987.
17 And could you provide us with your comments on what
18 this slide illustrates?

19 A. Okay. This area has been bladed; in
20 other words, the prescription was blading and, Madam
21 Chair, you realize what blading is.

22 MADAM CHAIR: Yes, we have seen all
23 examples of site preparation in the field.

24 THE WITNESS: Okay, fine. So blading was
25 not effective here because purpose of blading is to

1 disturb upper layers of the feather mosses which dry up
2 obviously here, and this didn't happen, so they planted
3 trees in the undisturbed dried out feather mosses
4 layer, and again I can show many photographs cross the
5 northern Ontario this happen frequently where planter
6 is planting these trees in desecrated mosses which have
7 all the nutritional capital leached out, and the
8 survival of course is very poor; in other words, the
9 tree is not surviving here and is dead, the cut-over --
10 there's another one over here, it's just so -- the
11 plantation obviously is not successful. There is one
12 right here too.

13 I have dug them out, I look at the full
14 causes and one of the problem is when you go in a
15 plantation after few months and this was probably month
16 or two, after you cannot exactly pinpoint the cause of
17 mortality.

18 These trees which are presently dead, was
19 the death caused by poor planting, poor condition of
20 the tree, poor site preparation, and in many many cases
21 I have found that it's combination of all; in other
22 words, when you have poor site preparation, when you
23 have poor stocking you are going to have poor survival.
24 But in this case, I couldn't -- I couldn't establish
25 with these trees what condition these trees were

1 planted.

2 And knowing problem with quality stock;
3 in other words, the quality of the stock delivered in
4 many instances I have found that it's planted will be
5 planted trees we are planting, while the area growth
6 already begun; in other words, the flushing out of the
7 area growth which makes the plants, very extremely,
8 extremely sensitive due to the survival, so I cannot...

9 So the fact is that if you do not remove
10 the dessicated mosses in large area clearcut, or you do
11 not specifically site prepare for planting, the trees
12 have a poor chance to survive. This is what I found
13 frequently in many areas across the board and it's not
14 new phenomenon, even before forest management
15 agreements were signed many of these plantations die
16 exactly of causes which I tried to explain to you.

17 I bring it here as FMA because under
18 condition we were told that the FMA will boost the
19 survival, the FMA going to produce better quality, the
20 FMA going to produce better quality stocks, treatment
21 and so on and so on, and it seems to me that they are
22 still problem with very elementary, very elementary.

23 I don't know exact price of these trees,
24 how much it cost the taxpayers to put them in the
25 ground, I don't know. I know the old rates but I am

1 not aware of the new, but it amounts to lots of money.
2 So it's very expensive because you are site preparing
3 and you are doing nursery production of these trees and
4 that's the point I like to make here showing you these
5 slides.

6 Next one, please.

7 MS. SWENARCHUK: Madam Chair, I believe
8 this would be the time to stop then.

9 MADAM CHAIR: We will call it a day, Mr.
10 Marek, and we start at nine o'clock tomorrow morning
11 and at the rate we are going, we certainly will be all
12 of tomorrow with the slides?

13 MS. SWENARCHUK: Yes.

14 MADAM CHAIR: And likely most of Tuesday?

15 MS. SWENARCHUK: Monday it is this coming
16 week.

17 MADAM CHAIR: Month, as well.

18 MS. SWENARCHUK: Yes. You will recall,
19 Madam Chair, that our plan -- our hope was
20 approximately two days on the Forests for Tomorrow
21 witness statement and a third day on the Beardmore
22 witness statement. We may -- I hope we can stick to
23 that. At the moment it looks like it may be slightly
24 more than that, but we will see by tomorrow.

25 MADAM CHAIR: Now, the slides for -- will

1 there be slides for the Beardmore --

2 MS. SWENARCHUK: No.

3 MADAM CHAIR: No. All right, fine.

4 Thank you very much.

5 ---Whereupon upon the hearing adjourned at 4:00 p.m.,
6 to be reconvened on Thursday, November 1st, 1990,
7 commencing at 9:00 a.m.

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